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ABSTRACT

This report on the 1970 meeting of the Aquatics Council of the American Association for Health, Physical Education, and Recreation is divided into three sections reflecting the three phases of the Council's interest. Section One is devoted to basic aquatic education for the physical educator. Section Two concerns basic aquatic education for the aquatic specialist. Male and female competitive swimming, skin and SCUBA diving, and water polo and synchronized swimming are discussed here. Section Three is devoted to basic aquatic education for a concentration in aquatics. Also included are outlines of seminars conducted at the conference on topics such as pool administration, research, construction and design of indoor swimming pools, and teaching methods and progressions. (JA)

CONFERENCE ON

PROFESSIONAL STANDARDS FOR AQUATIC EDUCATION

Proceedings of the
First National Aquatics
Conference on
Professional Standards

National Education
Association Center
Washington, D.C.
February 1–4, 1970

Aquatics Council
of the General
Division of the
American Association
for Health, Physical
Education, and Recreation

FOREWORD

At the 1968 convention of the American Association for Health, Physical Education, and Recreation, the aquatic section became a council with expanded purposes and responsibilities. After two years of planning, the Aquatics Council of AAHPER realized the hopes and dreams of many when it sponsored the First National Aquatic Conference on Professional Standards, February 1–4, 1970 at the National Education Association Center in Washington, D.C. The conference planning committee met in June 1969 to formulate plans and select speakers.

Among the council's goals, those which it is currently concerned with are to unify, strengthen, and improve aquatic teaching standards in schools and colleges through more effective preparatory programs and to develop guidelines and standards for professional aquatic leadership. Toward this end the conference was designed. The task was viewed as a three-pronged sequential process and identified as Phases I, II, and III.

Phase I is concerned with the basic aquatic education of physical educators. What curricular content should be included in the programs of physical educators? What skills should they possess? What methodology should they receive? What information on facilities operation and maintenance should they know? Phase II is concerned with the curricular content of the aquatic specialist, that is, one who possesses a general knowledge in all phases of aquatics and a great deal of knowledge in one or more specific areas, such as competition, instruction, handicapped, skin and SCUBA diving, small craft and open water, springboard and platform diving, synchronized swimming, and water polo. Phase III deals with a concentration in aquatics for the full-time aquatic leader, who is responsible for the supervision and administration of aquatic programs and facilities.

JEAN ARRASMITH
Conference Director

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1. 1967–68 Aquatics Section Long Range Planning Committee (l to r) Donald Van Rossen, Berthaida Fairbanks, Myrtle S. Spande, Theresa Anderson, Jean Arrasmith, Fred Murphy

2. A moment of relaxation with some of the conference recorders

3. 1969–70 Aquatics Executive Committee & Conference Planning Committee (seated, l to r) Joanna Midtlyng, Donald Van Rossen; (standing) Charles Butt, Fred Murphy, Myrtle S. Spande

4, & 5. Conference Editorial Committee (l to r) Robert Clayton, John Torney, Jr., Marjorie Harris

6. Jean Arrasmith, Conference Director

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4. Carl A. Troester, Jr., AAHPER Executive Secretary; Joanna Midtlyng, Chairman of the Aquatics Council, John M. Cooper, President of AAHPER

5. Overall view of conference session

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ADDRESS

THOMAS EBRO
Director of Aquatics, County of Los Angeles
Department of Parks and Recreation, California

WONDERFUL WORLD OF AQUATICS

I cherish the honor and privilege to discuss the "Wonderful World of Aquatics." I remember clearly when I was first bitten by the "aquatic bug." I remember the special attachment I felt toward being near the water and the personal sacrifices I made each summer just to return, to identify as a lifeguard, or as a swim instructor, just so I was around the water.

The exact chemistry of this strange attachment, or water madness, is still unclear to me. Perhaps it was what we used to refer to as "getting rays"—the summer warmth and anticipation of a dark suntan—that beckoned me. Or perhaps it was the mental comfort and triumph that came with feeling at home in the water. Possibly, I was simply lazy and enjoyed looking forward to meeting the cute girls who flocked to our facility each summer.

Aquatics has matured and at last has grown out of the lifeguard-sunbather image. It has become a multimillion dollar industry and is regarded as big business. Whole industries are being supported by public aquatic recreational activities today.

Just take a look at the number of swimming pools that exist or are being constructed. They are virtually everywhere. Look at the public recreation agencies, schools, motels, and private homes. Hardly a facility is built without the inclusion of a swimming pool, particularly in warm regions. Long Beach, California recently completed construction of a huge four million dollar public swimming pool that filters over a million gallons every turnover and features plush carpets on the floor, fancy guardchair communications systems, and underwater TV monitors.

Look at the small craft industry. One sees entire shorelines populated by boats and marinas with hardly any room left on the waterways anymore.

From tiny sabots and plastic family boats to large sailboats and yachts—they're multiplying at an incredible rate. From an organizational standpoint, we can anticipate sweeping changes that will surely affect the professionals in this specialty. There is talk of the United States Coast Guard perhaps transferring its responsibilities to local agencies and the possibility of greater emphasis on boating safety standards, including proposals to license small craft skippers. Think of the new avenues these changes may introduce. I strongly feel that in order to meet this tremendous growth we need a new breed of specially trained professionals to cope with the unique types of operational and managerial problems.

Let us regard the incredible growth of skin and SCUBA diving over the past 10 years. Diving has only become available for us as a sport since 1954. Until 1950, it was a military activity limited to underwater warfare troops. The sport has grown so rapidly since then that skin and SCUBA diving currently ranks as one of the largest sports within aquatics. In Los Angeles County alone, we are training and certifying divers at a rate of more than 1,000 a month. Along with dive shops, YMCAs, and resorts, schools and universities are beginning to feature diving programs as part of their curricula.

Here, too, there exists an urgent need for aquatic specialists who understand this discipline and will fill the professional void in the academic system. Aquatics has become too big and important for a part-time training approach. Professionals need to be developed through academic channels, complete with undergraduate and graduate curricula leading to degrees in various areas of aquatics.

As an example of the reaction to this need, the University of Oregon has been offering an aquatic option program since 1964 as part of its recreation curriculum. As a product of the program, I can offer testimony that there are abundant jobs available, but no one qualified to fill the positions. I recently spoke with a contractor who said he would offer a $20,000 annual salary to a qualified aquatic specialist, but was having difficulty locating such a person.

To illustrate further the current demand for aquatic professionals, I'd like to turn your attention to the Outdoor Recreation Resources Review Commission Report, a study conducted by the federal government a number of years ago. Its purpose was to study the national trends and recreational needs of the future. By far, the most astounding discovery was that aquatics held a considerable lead over all other forms of recreational activity. People simply like the water and want aquatic recreation for the future. The study predicted that by the year 2000 aquatic activity will hold the greatest attraction and participation over other leisure pursuits.

This AAHPER First National Aquatics Conference on Professional Standards is certainly a dream-come-true for many of us. If our desired outcome—the printing of "Guidelines for the Professional Development of

Aquatic Personnel"—is successful, we will have taken a giant step. Of course, there are some people who think that there are already too many aquatic organizations. In truth, AAHPER has addressed itself to a monumental task in aquatics and, as full-time professionals, your accomplishments will inevitably affect and significantly improve the professional image of aquatics. The more organized effort that can be generated towards serving special interest areas in aquatics, the sooner we can expect to upgrade the field of aquatics. Positive competition among altruistically-oriented organizations is healthy, and AAHPER's contribution to professional aquatics will result in healthy progress for everyone.

I believe that since Don Shollander brought back the four gold medals from the Olympics in 1964, we have seen an astounding increase in competitive swimming. Swim competition is a year-round activity today with weather no longer a deterrent. Wherever there are pools, there are coaches and swimmers.

Each year we see swimmers becoming younger and younger. In water safety courses, the minimum age for instructors has been lowered from 18 to 17 to accommodate the vast influx of teenagers. The Amateur Athletic Union (AAU) has had to create three special divisions along with new six-and-under categories, to cope with the ever increasing large number of young swimmers. We are seeing the emergence of strictly "novice" competitive programs in many communities. Novice swimming programs are quite popular in California; in Los Angeles County, for example, more than 3,000 youngsters are involved annually in highly organized regional novice competition, and the concept is growing. Swimming is being successfully taught to one-year-olds in the popular "infant learn to swim" programs across the country. One swimming instructor starts her youngsters swimming when they are only five days old. Her attitude is, "It's healthy for them and they're learning!"

Through special programs, we are teaching the blind and the handicapped to swim. Last year, in cooperation with the Kennedy Foundation, special Olympic events were held in the Los Angeles Swim Stadium for mentally handicapped children.

Fantastic changes have occurred in the art of lifeguarding, both on beaches and pools. Today, we enjoy a worldwide rapport with regard to lifeguard science and equipment. In Los Angeles, for example, we have maintained an active lifeguard exchange program with Australia. The entire concept of lifeguarding has changed with the advent of beach vehicles, boats with radar, and helicopters. We are placing more responsibility on the lifeguard. Unlike the past when anyone with a senior lifesaving card was regarded as a lifeguard, today there are formal lifeguard training and certification programs. Professional lifeguard organizations are developing with lobby groups for conditions and pay. In California, there is a bill before the legislature proposing a strict legal definition for lifeguards which spells out

standard performance criteria. Those of us who have been involved in legal liability contentions regarding lifeguarding can appreciate such progress.

I'm sure all of you appreciate what has happened to surfing. Now, even people who live in the desert can enjoy this activity, thanks to a new wave making machine. This innovation can be installed in swimming pools to create surfing waves. A giant version of such a machine operates successfully on the Arizona desert. It resembles a huge dam that operates like a giant toilet flusher. Every minute or so, an enormous wave comes out to give as many as 30 surfers a 500 foot ride.

How about water skiing? With the new interest in racing boats, water skiing activity has skyrocketed. Today, a person can strap on a kite or parachute and presto! he is "paraskiing." There are even cable machines that can be set up by a swimming pool to pull individuals across—a great way to learn either surfing or water skiing.

Aquatic enthusiasts are no longer satisfied with just surface activities. They are going underwater to enjoy skin and SCUBA diving. Some scientists are already suggesting that our current SCUBA tank with compressed air is obsolete. They have created a cryogenic SCUBA that uses super-cooled liquid air instead of compressed air. The effect is comparable to wearing a refrigerator on your back. Scientists are also experimenting with mice to search for ways which would enable man to breathe liquid instead of air.

Aquatics belongs to a class by itself, and as aquatic people, we feel we do, too. Each of us has chlorine in our veins and together we are seeking to establish new standards and build a profession within aquatics.

1. (l to r) Lionel McIlwain, Julian Stein (partially hidden), Ruth Magher, and Grace Reynolds at discussion group on programs for the handicapped

2. Thomas Ebro

3. Charles Silvia

4. Charles Butt

OPPOSITE PAGE: Swimming Pool in Frankfurt, Germany (Photo: M. Alexander Gabrielsen)

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PROBABLY no two schools of p[illegible]ia [illegible]para-tion in physical education of[illegible] require the same aquatic experiences of undergraduate majors. Because the variance is so great, it was felt that the first series of discussions should focus on the basic aquatic competencies that all physical educators should possess. The categories of discussion include individual skill development, knowledge and content, methodology, programs, and facility management.

BASIC AQUATIC EDUCATION

FOR THE PHYSICAL EDUCATOR

ADDRESS

CHARLES SILVIA
Swimming Coach and Professor of Physical Education
Springfield College, Springfield, Massachusetts

BASIC AQUATIC EDUCATION FOR THE PHYSICAL EDUCATOR

It was nearly 40 years ago that I experienced my first contact with Dr. Thomas K. Cureton, Jr., who was responsible for designing the aquatic curriculum for physical educators at Springfield College and who, as my teacher and coach, provided the stimulus needed for me to pursue a career in aquatics. I cannot adequately express my gratitude for his guidance.

Fifty years ago, Professor Affleck taught the required swimming courses for physical educators at Springfield College. The course description[1] was as follows:

SWIMMING AND DIVING

(1) Freshmen

(a) Practice, 12 points or 1 unit. Individual instruction is given in practicing the various strokes to secure confidence and reasonably correct form in the breaststroke, sidestroke, and backstroke, in diving, plunging, treading water, floating, etc.

Minimum Tests

Diving for form, shallow, deep, back.
Swim 100 yards using (a) breaststroke, (b) sidestroke, (c) any other stroke.
Swim 20 yards on back.
Plunge for distance 24 feet.
Float or tread water for one minute.

[1] International YMCA College, Springfield, Massachusetts. 34th Catalog, 1920–21, p.101-102

(b) Pedagogy, 6 points or 1/2 unit. During the season, classroom sessions are held considering the general underlying principles, including buoyancy, floating, details in various strokes, method of breathing, coordination of strokes and breathing, timing of strokes, standing and running dives, plunging, etc.

(2) Sophomores

(a) Practice, 12 points or 1 unit. The practice follows the same general lines, including water polo (according to English rules), water basketball, the recovery of objects from the bottom, methods of transporting unconscious person in water and resuscitation.

Minimum Tests

Dive for form using any three other than those in the freshman test.
Swim for 160 yards using four different strokes for at least 40 yards each.
Swim on back 40 yards using two strokes.
Plunge for distance 30 feet.
Support for one minute unconscious person of same weight as self; transport unconscious man 30 ft.

(b) Pedagogy, 6 points or 1/2 unit. In addition to the theoretical work of the freshman year, consideration is given to the rules of water polo and methods of lifesaving and resuscitation.

(3) Juniors

(a) Practice, 12 points or 1 unit. This consists of instruction and training in trudgeon and crawl strokes, underwater swimming, plunging for distance, relay and speed swimming, fancy diving from springboard—back, side, deep, shallow, swan, jackknife, handstand, back and front somersault, etc. Games including tag, leapfrog, water polo, water baseball, etc. Lifesaving approach, holds, breaks, methods of transportation, and resuscitation.

Minimum Tests

Diving from springboard for form using at least six different dives.
Swim 200 yards using at least four strokes for at least 50 yards.
Swim on back 40 yards using for 20 yards (a) legs only, (b) arms only.
Three methods of release and rescue; tow or transport unconscious person of same weight as self 50 feet; resuscitation.

(b) Pedagogy, 6 points or 1/2 unit. Emphasis is here placed upon the finer and more advanced features, methods of teaching, history of swimming, rules and events of competition, records of performance, etc.

(4) Seniors

(a) Practice, 12 points or 1/2 unit. Assigned coaching and officiating is required.

Under Dr. Cureton's innovative leadership, the aquatic courses at Springfield College in 1931[2] were as follows.

AQUATICS

The aquatic courses are organized to offer a progressive and coordinated series of practice and theory courses which, during four years, will give all-round training to men who may desire to serve as aquatic directors or coaches in schools, colleges, camps, or recreational centers. Two years of required work are offered, including both practice and theory. One additional practice course must be elected during the junior or senior years.

Beginners swimming. Fall term and repeated spring term, 15 hours. No credit. Primarily for students entering deficient in the entrance requirement.
Make-up swimming and diving. Fall term and repeated spring term. No credit.
Freshman swimming and diving. Required of all freshmen as part of the winter physical practice, 32 hours.
(1) Practice, 25 hours. Stresses fundamentals of swimming and diving.
(2) Theory, 7 hours. Covers material outlined in test, "The Teaching of Elementary Swimming and Diving." Theory is coordinated with practice in pool.
Canoeing. Spring term. Required of all freshmen as part of the physical practice in the spring.
(1) Practice, 12 hours. Given at freshman camp except for leadership group selected in the spring for special instruction. This group will make one or more trips on the Connecticut River or its subsidiaries. Qualified leaders will act as assistant instructors at camp.
(2) Theory, 10 hours. Lectures and assigned topics including repairing project.
Sophomore swimming and diving. Winter term. Required of all sophomores as part of the physical practice.
(1) Practice, 25 hours. Advanced skills in swimming, diving, and recreational stunts. Fundamentals of lifesaving. Sides are chosen for mass competitive meets. Objective tests are given to test swimming efficiency.
(2) Theory, 7 hours. Stresses general theory of advanced swimming and diving instruction with emphasis upon the techniques. Lectures and outside readings are coordinated with pool practice.
Lifesaving and boating. Fall term and repeated in the winter and spring terms. Two hours per week and some outside project work. Instruction covers

2 International YMCA College, Springfield, Massachusetts. Catalog 1931–33, p.79-80.

waterfront safety techniques. Tests for the Red Cross or YMCA lifesaving tests will be offered, 1/2 practice credit.

Advanced recreational aquatics. Winter term, two hours per week on the practice of the activities and one hour per week on the design and demonstration of games, stunts, and other water recreational activities. Elective as a practice course junior or senior year, 1/2 practice credit.

Freshman varsity swimming team. Winter term, one hour each day. Team meets other representative teams of New England colleges and preparatory schools. No credit.

Swimming and diving coaching and officiating. Winter term, two lectures and one laboratory period per week. Takes up the problems encountered in coaching competitive teams. Special attention is given to methods of analyzing the strokes of swimmers. Elective for juniors and seniors, 1-1/2 semester hours credit.

Swimming and diving pedagogy. Winter term, two lectures and one laboratory period per week. Specially designed for analysis of the teaching problems encountered in general swimming instruction. Indoor pool problem are stressed. Elective junior or senior year, 1 semester hour credit.

Camp aquatic leadership. Spring term, two lectures and one laboratory period per week. A project is required from each student. The course stresses the problems of the camp aquatic director. Elective for juniors and seniors, 1-1/2 semester hours.

Varsity swimming team. Winter term, one hour daily. Some voluntary training is done in the fall. Springfield College is a member of the New England Swimming Association and has meets with the representative college teams of this group, 1 practice credit.

By 1940,[3] the aquatic curriculum at Springfield College had developed as follows:

CURRICULUM

Required Courses

1. Survey of aquatics, 2 hours a week, 1 semester hour—theory.

A survey of the divisions of aquatics, the philosophical basis for aquatics in the curriculum, control of health relationships, evaluation of swimming strokes and teaching methods, beginner and intermediate programs, trends in lifesaving and water safety, aspects of competitive swimming, recreational activities, camp aquatic programs, and professional and leadership training in aquatics.

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[3] Springfield College Bulletin. Catalog Number 1940–42, Springfield, Massachusetts.

2. Swimming and Diving I, 2 hours a week, 1/3 semester hour—practice.
Freshmen are scheduled for this course either during the fall or winter term depending upon their standing in a classification test given during Freshman Days. Non-swimmers are scheduled for a beginner's course during the fall term. The spring term provides an opportunity for students who require special instruction. The seven major categories of beginner's skills and the five major categories of intermediate skills are used as the basis of instruction.

3. Swimming II, 3 hours a week, 2/3 semester hour—practice.
Personal safety and rescue methods including beach, pool, lake, and ice rescue techniques. Prepares for certification by national organizations, such as: the YMCA, the American Red Cross, the National Collegiate Athletic Association. Certain special requirements of particular organizations may necessitate additional work.

Elective Courses

1. Camp aquatic leadership, freshman camp period, 1 semester hour—theory.
This course deals with the problems of the camp aquatic director, including organization of staff and equipment, dock design, waterfront safety, plans of instruction, scope of program, classification tests, reports to the camp director and parents.

2. Methods of teaching and coaching aquatics, 3 hours per week, 2 semester hours—theory.
This course is basic for students who aim to meet the professional certification requirements for aquatic director or aquatic instructor outlined by various organizations. Included are a systematic treatment of the philosophy, historical development, psychological theories, and techniques of teaching and coaching swimming and diving at the beginning, intermediate, and advanced levels. Individual, squad, mass, and combination methods of teaching and methods of analyzing and testing are covered. Motion pictures are used to illustrate methods.

3. Methods of teaching lifesaving and water safety, 3 hours a week, 2 semester hours—theory.
Developed in this course are various systems of lifesaving and water safety, methods of teaching, historical aspects, accident statistics, experimental comparison of techniques, physiology of drowning and resuscitation, beach water safety, and analysis of the programs and requirements of various organizations. Source materials, including published research, are stressed.

4. Administration of aquatics, 3 hours a week, 2 semester hours—theory.
The course deals with the principal leadership problems of organization,

administration, and supervision of pools and aquatic programs. The schemes of organization of various national bodies for administering aquatic programs are discussed. Standards of health, supervision, maintenance, and operation of pools; survey studies of the status of personnel and programs in representative cities and organizations; training for professional and lay aquatic leaders; programs for schools, colleges, camps, and civic recreational centers; financing, publicizing, motivating attendance, and legal relations.

5. Boating and canoeing, 2 hours a week, 1/3 semester hour—practice. This course covers the fundamentals of boating and canoeing from the standpoint of preparing leaders for positions in summer camps. Techniques such as water safety drills, care and repair, launching, carrying, landing, stroking, sailing, stunts, and racing are stressed. This course may be taken as an elective at freshman camp in June.

6. Swimming III, A, Advanced recreational aquatics, 3 hours a week, 2/3 semester hour—practice.
This course includes a wide variety of stunts, games, novelty swimming strokes, group formations, and pageants suitable for camp or pool situations. A portion of the time is devoted to lectures, projects, and assignments covering the literature and curriculum materials.

7. Swimming III, B, Diving, 2 hours a week, 1/3 semester hour—practice. For students who desire further skill in diving, this course aims to acquaint the student with the elementary mechanics of representative dives from each of the five categories. The judging of competitive diving is considered and motion pictures are used as illustrative material.

In 1940, by combining the required and elective courses, it was possible for a physical education major student at Springfield College to graduate with a total of eight semester hours in the theory of aquatics and 2-1/3 semester hours in the practice of aquatics.

The changes that took place in the required aquatic curriculum after 1940 at Springfield College were (1) in 1947, the required practice swimming courses of one semester hour were given during the fall, winter, and spring terms of the freshman year and (2) in 1951, the theory course, Survey of Aquatics, was deleted from the required curriculum for physical educators to make way for the 10 semester hour student teaching requirement.

The present required aquatic curriculum at Springfield College consists of two skills and techniques courses, namely:

P 141: Swimming, 30 hours, 2/3 semester hour—Freshman Year (Men and Women)

Offers a fundamental skill and teaching knowledge of the basic strokes of swimming Satisfactory completion of the second section for men will result in certification as American Red Cross and YMCA Senior Lifesaver.

P 142: Water Stunts and Diving, 30 hours, 1/3 semester hour--Sophomore Year (Men and Women)
Offers a fundamental skill and teaching knowledge of six individual water stunts, six basic dives (one from each of the five categories of dives and one optional dive). Introduction to basic principles and techniques of skin and SCUBA diving. Introduction to methods of teaching and coaching swimming and diving.

The elective courses are:

PE 143: Teaching and coaching swimming and diving, 2 semester hours
(Men) A systematic treatment of the philosophy, principles, and techniques of teaching and coaching swimming and diving.
(Women) Philosophy, principles, and techniques of teaching and coaching swimming and diving; integration of philosophy and principles with actual practice.

PE 222: Organization and administration of aquatics, 3 semester hours
Leadership problems of organization, administration, and supervision of pools and aquatic programs. Standards of health, supervision, maintenance, and operation of pools; survey studies of the status of personnel and programs in representative cities and organizations; training for professional and lay aquatic leaders, programs for schools, colleges, camps, and civic recreational centers, financing, publicizing, motivating attendance, and legal relations.

PE 239: Teaching synchronized swimming, 2 semester hours
Acquaints students with types of synchronized swimming and accompaniment; methods of building routines for solo, duet, and large group performance; methods of training swimmers for synchronized swimming.

PE 243: Advanced recreational aquatics, 2/3 semester hour
Includes a wide variety of stunts, games, synchronized swimming, novelty swimming strokes, and group formations suitable for camp or pool situations.

PE 245: Advanced diving, 1/3 semester hour
For students who desire further skill and teaching knowledge in diving. Aims to acquaint the student with the elementary mechanics of representative dives from each of the five categories. Judging of competitive diving considered and motion pictures used as illustrative material.

NP 44: Lifesaving (Women), 1/3 semester hour
Offers a fundamental knowledge of water safety and survival and rescue techniques used in lifesaving. Develops performance ability in water rescue.

NP 45: Skin and SCUBA diving (Men), 1/3 semester hour
Introductory course of skin and SCUBA diving. Emphasis is given to basic physical principles, hazards, selection of equipment and techniques.

NP 145: Boating and canoeing, 2/3 semester hour
Fundamentals of boating and canoeing from the standpoint of preparing leaders for positions in summer camps. Techniques such as water safety drills, care and repair, launching, carrying, landing, stroking, sailing, stunts, and racing are stressed.

The current four year curriculum does not have room for another required aquatic course, but if room can be found, I would suggest a one semester hour Survey of Aquatics course.

We can readily see the inadequacies of aquatic education for physical educators, but what can we do to improve its quality? How can we best prepare our young men and women to be most productive in this field? We must constantly seek to improve the content and scope of the aquatic curriculum. In conclusion, I would recommend that we:

1. Continue to improve our understanding of the human organism.
2. Encourage young men and women to relate more effectively to such areas as anatomy, mechanics and kinesiology, physiology, physiology of exercise, and psychology.
3. Strive to provide adequate facilities and skills so that the masses will utilize swimming as a lifetime activity.
4. Encourage research.
5. Be mindful of the need for more effective teaching and coaching methods.

DISCUSSIONS

BASIC AQUATIC EDUCATION FOR THE PHYSICAL EDUCATOR

Chairman: CHARLES BUTT, Bowdoin College, Brunswick, Maine
Speaker: JOHN SPANNUTH, World Swimming Coaches Association, Amerillo, Texas
Recorder: BERTHAIDA FAIRBANKS, University of Rochester

I. Individual Skill Development
   A. Guidelines should be general so that individual and sponsoring institutions can function with a degree of flexibility.
   B. A lack of consensus exists in the proposal that lifesaving certification be required of all physical education maiors.
   C. Content should include the following skills.
      1. Adjustment to water
         a) Breath control
         b) Body control (agility, balance)
         c) Mental adjustment (motivation, appreciation, attitudes)
      2. Buoyancy skills, including drownproofing or survival floats
      3. Propulsion
         a) Locomotor
            (1) Proficiency in four of the following six strokes, including at least one on the back:
               (a) Crawl (d) Elementary backstroke
               (b) Back crawl (e) Breaststroke
               (c) Butterfly (f) Sidestroke
            (2) Finning
            (3) Surface diving
            (4) Underwater swimming
         b) Non-locomotor
            (1) Treading
            (2) Somersaults
            (3) Twists
      4. Entries
         a) Head first and feet first from a one-meter board
      5. Safety
         a) Personal safety and self-rescue techniques

6. Lifesaving
   a) Non-swimming rescues
   b) Elementary rescues using flotation devices
   c) Resuscitation

Chairman: FRED MURPHY, University of Colorado
Speaker: RALPH BIBLER, University of Colorado
Recorder: EARLE ENGLAND, Mesa College, Grand Junction, Colorado

II. Knowledge and Content

A. No prerequisite is needed to enter the physical education major program.
B. An aquatic orientation experience should be required prior to graduation.
   1. Wide exposure to a variety of aquatic activities (swimming, diving, SCUBA, etc.) achieved through various media (films, demonstrations, lectures)
C. Content should include the following areas.
   1. Aquatic terminology
   2. Stroke and springboard diving mechanics
   3. Buoyancy, resistance, propulsion, and supportive movements
   4. Fear—its influence upon learning and its elimination
   5. Water safety education
   6. Aquatic equipment—types and uses
   7. Emergency procedures (resuscitation, first aid)
   8. Career and employment opportunities
   9. Books and other resources
D. These minimum aquatic experiences would not qualify the student for aquatic teaching certification.

Chairman: JOANNA MIDTLYNG, Indiana University
Speaker: MARJORIE HARRIS, University of Illinois
Recorder: CAROL COOPER, Southern Illinois University

III. Methodology

A. All physical education majors should have a general methodology course in physical education.
B. A course in the psychology of motor learning, taught by physical educators, should be a prerequisite to the methodology course.

C. An exposure to the aquatic medium should be required of all major students. Selection of course and skill level will depend upon the interest and ability of the student. This experience should increase aquatic performance skill and result in personal safety, appreciation of aquatic activity, and awareness of the unique problems involved in moving the body through the water.

D. Basic knowledge of human movement patterns should be gained from inter-departmental courses in the sciences (biology, anatomy, physiology, and physics), in kinesiology, and in psychological learning theories.

E. Instruction in biomechanics should include principles of movement in the water.

Chairman: DON VAN ROSSEN, University of Oregon
Speaker: RONALD BALCH, University of Colorado
Recorder: ALFRED REECE, University of Kentucky

IV. Programs

A. A definition of program is a basic foundation in aquatic theory, skills, and knowledge.

B. There should be a prerequisite of swimming skills beyond the beginners' level and training in lifesaving techniques.

C. The following should be included in the basic aquatic education program.

1. Preparation of the learner
2. Group organization for teaching of swimming
3. Teaching of swimming at various ability levels
4. Analyses of strokes
5. Progressions for various skill levels
6. Evaluation of skill achievement
7. Types of instructional program of youth-serving and/or national agencies
8. A practicum in one or more of the following recommended laboratory experiences:
   a) Public school swim program
   b) Community swim program
   c) Club swim program
   d) College and university swim program
   e) Summer swim program
9. Water safety

D. The student should be prepared to teach basic swimming, but would not necessarily be certified.

Chairman: JOHN LEWELLEN, Ball State University, Muncie, Indiana
Speaker: DAVID THOMAS, State University of New York, Binghamton
Recorder: JOHN FOSTER, University of Alabama

V. Facility Management

A. Every major physical education student should understand and know the basic principles of the operation and maintenance of aquatic facilities.

B. Content should include the following areas.

1. Safety in operation
   a) Facility rules for patrons
   b) Rules for guards
   c) Handling of equipment and chemicals
   d) Emergency plan and first aid procedures and equipment
   e) Health factors
2. Sanitation of areas used by patrons
3. Operation of filter media and systems
4. Water chemistry
   a) pH control
   b) Bactericides
   c) Filter aids
   d) Algae control
5. Storage of aquatic supplies and equipment

C. If a physical education student is called upon to work firsthand with an aquatic facility, he should be used primarily in an apprentice role unless he has more specific education and then can assume greater responsibility.

D. Further education should be initiated in the form of clinics or consulting services in facility operation and maintenance.

1

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5

1. Peggy McDowell, Julian Carroll, and Milton Orphan discuss the core program

2. Conferees listen intently at a discussion group

3. John Lewellen demonstrates a point on facility management

4. Charles Batterman discusses springboard and platform diving

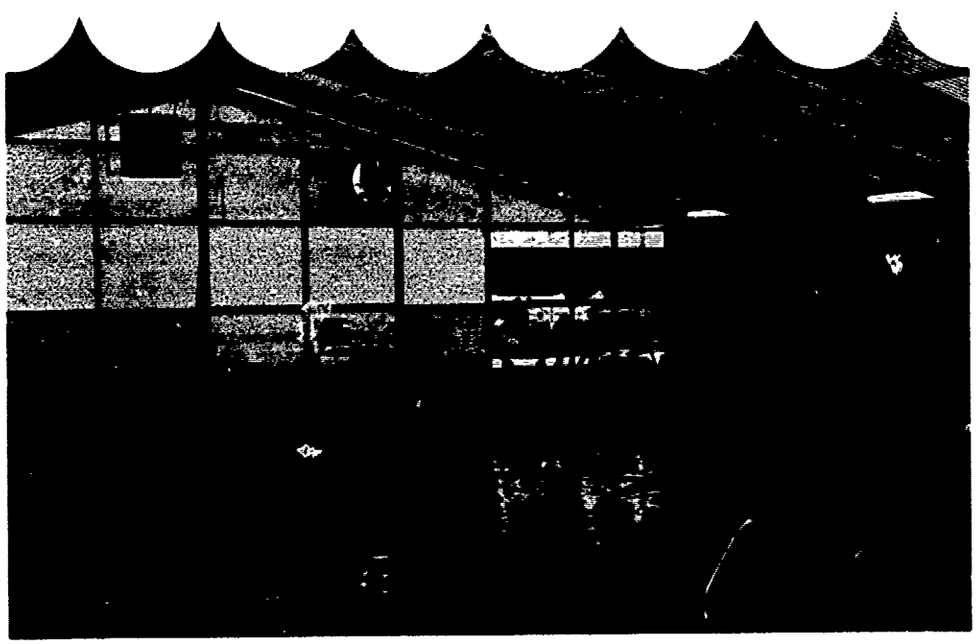
5. Betty Spears

OPPOSITE PAGE: Low cost structure with aluminum frame and fiberglass cover (Photo: M. A. Gabrielsen)

THE PRECEDING SECTION has indicated certain aquatic experiences which should be a part of the professional training of all physical educators. The second phase of the conference is designed to determine which experiences are desirable for individuals who wish to become aquatic specialists in any of the following areas: (1) competitive swimming for men, (2) competitive swimming for women, (3) instruction, (4) aquatics for the handicapped, (5) skin and SCUBA diving, (6) small craft, (7) springboard and platform diving, (8) synchronized swimming, and (9) water polo.

BASIC AQUATIC EDUCATION

FOR THE AQUATIC SPECIALIST



DISCUSSION

BETTY SPEARS
Professor and Chairman, Department of Physical Education
Wellesley College, Wellesley, Massachusetts

BASIC AQUATIC EDUCATION FOR THE AQUATIC SPECIALIST

In order to gain a perspective of the basic education for aquatic specialists let us examine the development of aquatics during the past 30 years, look ahead to what we can expect in the next century, and suggest areas of study for the aquatic specialist.

In 1940, Dr. Margaret Bell, AAHPER President, appointed a Committee on Aquatic Leadership. The objectives of the committee were to (1) develop and recommend standards of leadership for training aquatic directors and instructors; (2) promote these standards, when and if they are approved by AAHPER by sensitizing administrators in education and recreation departments to this need, (3) stimulate the upgrading of professional aquatic courses in colleges and universities engaged in training teachers; (4) create more positions of higher grade in the aquatic field to be filled by graduates or students who are training for professional work in health, physical education, and recreation; and (5) recommend personnel for aquatic leadership.

The committee worked assiduously making inquiries of state departments of education, projecting studies for masters' theses, conducting conferences throughout the country, planning reports, reworking ideas from surveys, and arriving at a proposed set of standards. The recommended standards for the aquatic director were as follows: (1) minimum of three theory courses or comprehensive examination at a college or university training center; (2) within a year of the date of application, performance at least equal to progressive tests of the Red Cross or YMCA up through and including lifesaving; (3) 25–30 hours of practice teaching under supervision or five years of professional aquatic experience; (4) application endorsed by an aquatic teacher or a physical education teacher, who is a member of AAHPER;

(5) $1.00 fee for the certification and $2.00 fee for the examination. The institution would be responsible for collecting the fees and printing the certificates.

I included these items to show the thinking of aquatic leaders 30 years ago. What was included in college aquatic programs at that time? In the mid-thirties, I entered a small woman's college which was equipped with a swimming pool, open every afternoon. There was a phonograph in the pool room and we swam to music—at least we did floating formations and changed the pattern when the whistle was blown. Later, I transferred to Purdue University. There were two pools on that campus! Marion Russell taught us really how to swim to music and I saw that new stroke called the butterfly breaststroke. That was aquatics 30 years ago.

Since then, there have been numerous developments in aquatics which have been made possible by circumstances, the invention of materials and equipment, and the imagination and labor of many people. During World War II there was a need for men to perform certain tasks underwater and frogmen came into existence. With the subsequent development of self-contained underwater breathing apparatus, SCUBA diving was born. Discussion of small craft was limited then to rowing and canoeing. Water skiing was not part of the program and sailing was a sport of the elite. Technological advancements in equipment and materials have perhaps affected small craft more than most other areas of aquatics. Fiberglass and other man-made materials have considerably minimized the care and maintenance of small boats, lowered their cost, and thus have enabled many families to own boats.

Since 1934, synchronized swimming also has made great strides. The sound reproduction systems of 30 years ago were unsophisticated and underwater speakers were unknown. The imagination and experimentation of many people have shown us what the body can do in the water in contrast to the few movements we formerly thought possible.

The consistent research and efforts of swimming coaches have resulted in the development of strokes based on the application of science to swimming. Just watch the old movies and see the differences in stroke mechanics. Of course, the times have been reduced as a result of the improved strokes.

What will the next 30 years bring? Will diving boards be electronically adapted to provide the diver with more capability in the air? Will swimming supports and small tanks be invented that will make it possible for man to swim long distances while remaining in place? Will there be prostheses that may be worn in the water or controlled electrically in the water? How can we anticipate all the developments and inventions that will take place?

But we are faced with today! Our problem is to reconcile the needs of today with the unknown needs of tomorrow. That brings us to the core

program. As I analyzed the topic of basic education for the aquatic specialist, I asked myself what is common to the core program, i.e., what is common to water polo, programs for the handicapped, competitive swimming, etc? I identified two items as common to all areas of aquatics—man and water. Therefore, the basic education of the aquatic specialist should provide for the study of man, water, and their relationship.

The study of man in the environment of water can be approached from several aspects. These include the scientific bases for man in the environment of water, man's activities and limitations in water, and the reasons that man participates in aquatic activities.

The scientific principles which affect man in the environment of water are derived from physiology, kinesiology, biomechanics, psychology, sociology, ecology, and other environmental and behavioral sciences. The aquatic specialist should know about the physiology of immersion, respiration, aerobic and anaerobic work, and all aquatic movements. He should be familiar with how the body regulates the length of time man can remain in water, how fast he can go, what factors control the endurance and speed of swimmers, and what principles are basic to survival swimming.

Charles Silvia, an authority on aquatics, has noted the importance of "the use of electromyographical techniques to understand the use of muscles more exactly." The mechanics of propulsion should be studied so that specialists will have the foundation knowledge to understand swimming strokes as they are now, as they become modified, and as new ones evolve.

And then there are the psychological bases of swimming. Psychological factors attract performance in such recreational swimming activities as SCUBA diving, competitive swimming, and swimming for the handicapped. We have all encountered students who are afraid of the water, but have we known the best psychological principles to apply? Are we knowledgeable about the psychology of fear, especially as it pertains to the water?

I wish to place an emphasis on learning that affects the acquisition of skill. Most curricula with which I am familiar provide for the study of teaching methods. I propose that the aquatic specialist be familiar with the overall area of learning and that teaching be approached from the context of the learner. Marjorie Harris, in her recent book, "Basic Swimming Analyzed," reports a shocking fact. In a survey of 349 students enrolled in beginning swimming classes at the University of Illinois 48% of the students had had previous swimming instruction. Yet, none of these students had learned to swim in deep water after their first swimming course. Furthermore, her data imply that students who had had swimming instruction and had not learned to swim are nearly four times more likely to be afraid than those who have not had instruction. Perhaps sufficient study of motor learning applied to aquatics will bring about changes in our present teaching methods. For those of you who are interested in this subject, I recommend Councilman's "Science of Swimming."

The sociology of aquatics becomes important in understanding the development of aquatic programs and man's participation in aquatic activities. I believe the participation figure now has passed the 40 million mark. Is the increase due to affluence, status, the increased skill of the general public, just plain fun, promotion by commercial interests, vocational reasons, or other unidentified factors? The increased interest in environmental concerns as well as other emerging scientific and allied studies also may affect aquatics.

Let us now examine man's limitations in water. This area should include both practical and theoretical aspects of the subject. By discovering and investigating man's limitations in water the student should experience adapting his breathing pattern to and moving his body in the aquatic medium. He should seek means for entering the water, going from the surface to below the surface, propelling himself through the water, remaining in the water for extended periods of time, and performing as many other types of aquatic movement as his body will permit. He should also discover the limitations that are imposed on man if he has such handicaps as being without sight or having the use of fewer than four limbs. In addition, aquatic students should be able to cope with new problems in aquatic movement as they arise.

One particular aspect of man's limitation in the water is safety. The aquatic specialist should ascertain how safe man is in the water, what constitutes a safe situation, and what creates an unsafe situation. He should know how to recognize signs of danger and be able to prevent water emergencies for himself and others in a variety of aquatic situations. Oh, you are saying—she means lifesaving. Yes and no. I believe that the areas of personal safety in and around the water and the methods of aiding others are among the most neglected phases of aquatics. There is a vast difference between lifesaving and lifeguarding. Most of us are accustomed to teaching lifesaving within the context of personal safety with some adaptations to rescuing individuals when specific situations arise. I define lifeguarding as the observation of others, the prevention of emergencies and when necessary, the undertaking of appropriate rescues.

Recognizing fully the work of the American Red Cross and other agencies, I believe the professionals have neglected their duty in the areas of lifesaving and lifeguarding. We need to develop principles of personal safety and aid to others and provide safety aquatic education, particularly for aquatic leaders who train volunteer personnel in organizations and agency programs.

After the aquatic specialist understands man's relationship to and limitations in the water he is ready to pursue man's activities in the water. If man is projected into the air, what movements are executed? How can aquatic movement express an idea as in art or dance? Can a group of swimmers identify a base to defend and prevent another group of swimmers from getting a ball in the base they are defending? All these activities have patterns, i.e., each has a form of organization. Racing or competitive swimming is a

patterned aquatic activity. Springboard and platform diving have patterns, as do synchronized swimming and water polo. The aquatic specialist should be familiar with the concept of patterns of aquatic activities.

Aquatic activities involving equipment should be studied by the aquatic specialist. What equipment does man wear to enhance his aquatic activities or what equipment might be devised? We are now accustomed to mask, fin, snorkel, and other equipment related to skin and SCUBA diving. We are beginning to see small motorized vehicles which man can hold as he is transported underwater. What other equipment will be developed?

Man has devised objects that will float and used the forces of nature to transport himself in these objects. He has used these floating devices as a base from which to obtain food and as a means of livelihood. These objects, of course, are small craft, boats, canoes, and surfboards. For years we have defined small craft as rowing and paddling and have occasionally included sailing as well. While water skiing is relatively new, surfing is not but has become one of the "now" things to do. I tend to think that this phase of aquatics, small craft and open water, has been neglected by professional education. This is understandable because not every educational institution is located where a small craft program is possible.

One thing I do know, if I may digress from concepts for a moment, is that women teachers of small craft for college physical education programs are difficult to find. For 10 years I have been seeking women teachers of crew. May I say the market is not flooded! Wellesley happens to be on a lake. Our small craft program was developed from crew, which was started at Wellesley in 1875. Canoeing was added many years ago, and this year, we have initiated sailing instruction. The crew instructors use an inboard boat, while the sailing instructors use a small outboard boat. Traditionally, we provide our own education in crew—a new instructor takes crew, works with the head of crew, practices driving the motor launch, and there she is, the following season, teaching crew!

Where do small craft instructors receive their training? Many of them learn from personal experience, the Red Cross, the Boy Scouts, the United States Power Squadron, the Coast Guard, and of course, summer camps. Courses and educational experiences in small craft need to be further developed. Although I am still uncertain if every aquatic specialist should have experiences in small craft, I would emphasize for those planning to be specialists in small craft and open water a broad background in a variety of craft.

A final aspect of the basic aquatic education for aquatics specialists is an examination of the reasons for man's participation in aquatics. Why does man find aquatic activities enjoyable? Is it comforting? Is it to test himself? Howard Slusher, in his book, "Man, Sport, and Existence," uses surfing to illustrate man's seeking to understand himself through sport. For example,

he reports a surfer saying, ". . .I sought a meaning for life and found it when I ventured helplessley among the towering waves of Makaha. I was no match for their awesome power but, with courage and the confidence that comes from overcoming one's fear and ineptitude, I got a brief glimpse of glory." And then on existence and decision, Slusher writes, "The challenge of surfing is the challenge of extreme forces. The necessary sensitivity to nature not only demands aesthetic elements of form but requires precise balance. On the other hand, the ruthlessness of the wave demands strength, power and a degree of endurance. The surfer is endlessly free." [4] Why does man engage in these activities? Should the specialist know why? Will it help him? I propose that at least some philosophical inquiry be introduced in aquatic experiences where it is appropriate.

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[4] Howard Slusher, Man, Sport, and Existence. Philadelphia: Lea & Febiger, 1967.

ADDRESS

MILTON ORPHAN
Aquatic Director
Highline Community College, Midway, Washington

CORE PROGRAM

People don't like to have their cherished beliefs challenged and will protect them from attack in any way they can. Yet, teaching involves challenging the sacred beliefs of the student and asking him, forcing him if necessary, to examine them. That is why we are examing a core program in physical education for the aquatic specialist . . . that highly-trained, much maligned, underpaid professional who is trying to get his field out of the muscle beach-sun gatherer image that you and I have allowed it to be placed. I say allowed because until recently, we, the professionals, have not done anything constructive for the development of the professional. If there is a lack of professional development, it exists in understanding the minimum standards necessary for professional teaching or lifeguarding. The problem seems to arise from the automatic acceptance by educational administrators of certifying standards set by American Red Cross (ARC) programs. I am not condemning the ARC. It is simply not their objective to train professional lifeguards or instructors. Nonetheless, administrators continue to recognize their programs as the "standard." As a result, the aquatic field contains many poorly qualified professionals. In addition, institutions have forgotten the aquatic program in their physical education curriculum. I believe you could count on your fingers the institutions offering programs for aquatic specialists. It is interesting to note that among these institutions two of them—George Williams College (in Chicago) and Springfield College (in Massachusetts)—have been instructing professionals in the field of aquatics for many years and without fanfare.

The term "aquatic specialist," which has been used rather freely to describe various combinations, has suddenly become fashionable in educational jargon. The aquatic specialist is a professional having the ability and training to plan and

administer a well-rounded aquatic program. As an individual, he should possess the following qualities:

- Teachability--Not only be able to teach, but to be taught--to learn on the job.
- Personality--Desire to be of service, enjoy working with people, be creative, enjoy conceiving and promoting new programs, be reliable and loyal, and have high moral commitment.
- Adaptability--Able to communicate with people of all ages and types, withstand tension from a variety of stresses, be effective at many levels, and still be able to handle situations concerning physical plant systems and pool equipment.
- Physical Vigor--Be happy, healthy, ambitious, and capable of working long, irregular hours if necessary.
- Skill Diversity--Show skill in all vocational trades: plumber, painter, mechanic, first aider, and a variety of other roles.

However, before we can discuss the core program, we must determine if there is a need for the aquatic specialist. In Seattle, Washington, job requests from local employers indicated the following needs:

Instructors and/or lifeguards (all agencies)	55%
Coach and supervisor or administrator (schools)	15%
Coach and program director (schools)	14%
Pool manager and teaching specialist (parks)	8%
Teaching specialist (all agencies)	6%
Waterfront director (youth agencies)	2%

If this survey reflected national needs as well, one could assume that priority be given to professional development programs which prepared lifeguards and instructors. Although most universities and colleges are adequately meeting this need, how many are training the specialists? With the increasing number of swimming pools, summer jobs, and part-time employment, the demand for aquatic specialists is greater than the supply. Pools are being built daily. The NSPI reports that in 1965 alone, 79,100 pools (excluding the private backyard variety) were constructed. Seattle and King County are presently building 15 public pools, of which three will hopefully be indoor 50 meter courses and 12 will be short course (25 yard) pools. This is just a small indication of the tremendous interest in aquatics.

This raises the issue of what training the aquatic specialist should receive. Let me, however, preface my remarks with the following thoughts that have influenced my concept of the core program.

The direction of an aquatic program must be predicated upon the needs of the community, bearing in mind the wide diversity of such needs. The program must be sufficiently flexible to meet these needs. It should allow for a two-year transfer program, a two-year vocational (terminal) program, and

a four-year baccalaureate program. The core program should require students to meet minimum standards and after having been met, permit students to further develop their own interests and skills. Lastly, the program should prepare students to qualify for the occupational specialty of their choice.

But we still have not arrived at the common factors in the training of the aquatic specialist. It is my feeling that the innermost core of the aquatic program must be centered around instruction and water safety skills (beyond the ARC, YMCA leader examiner, or water safety instructor level). We should take the existing national certifying programs of the YMCA, the ARC, the National Association of Underwater Instructors, the American Swimming Coaches Association, and the National Standards Institute and its Z-135 and Z-86 committees, screen the programs of each, and use these long-established, much tried programs as points of departure in determining the formal structure of course work and skill level in colleges and universities. This would allow for the integration of these excellent programs into a new, more concentrated and specialized program for professional development.

Many of the existing national programs could be used as the basic standard of skill and knowledge that an individual must have before entering the college or university training program.

To insure that the aquatic specialist is well-trained, I would suggest that the course content cover the following areas: (1) professional classes encompassing aquatic sports, pool management, skills and materials, special problems, administration, and practicum; (2) swimming instruction courses, including advanced skills, progressions, and techniques; (3) lifesaving and water safety classes that would include advanced knowledge of all swimming and water safety skills and additional experience in the area; (4) specialization that would include skin and SCUBA diving, handicapped and competitive classes, springboard and platform diving, water games, synchronized swimming, small craft and open water classes, and coaching methods.

If an individual possesses this vast store of information, techniques, and skills but cannot transmit it to others, he will be an ineffective leader. He must understand people! Therefore, the core curriculum must include instruction in teaching skills and methodology and related areas such as business administration, sociology, psychology, and communications.

These comments raise the question of students' time limitations and degree requirements. Should certain courses from the present physical education curriculum be eliminated to allow for specialization in aquatics? Or, should a fifth year be added?

Each of us has allowed the personnel training programs in aquatics to remain static. The time is not too late to rectify this situation, but it will take deep, individual searching and collective hard work.

DISCUSSIONS

BASIC AQUATIC EDUCATION FOR THE AQUATIC SPECIALIST

Subject: **CORE PROGRAM**
Chairman: **JULIAN CARROLL, Canadian Red Cross Society, Toronto**
Speaker: **MILTON ORPHAN**
Recorder: **PEGGY McDOWELL, North Central College, Naperville, Illinois**

I. **Premises**
   A. "Core" describes the basic denominator of skills, knowledge, etc. needed by the specialist.
   B. An aquatic specialist may be defined as one with a basic core of knowledge, skill, and experience in aquatics and a great deal of knowledge, skill, and experience in at least one area, e.g., skin and SCUBA diving.

II. **Individual Skill Development**
   A. Aquatic specialists should possess:
      1. Qualification as a Red Cross water safety instructor, YMCA leader-examiner, or equivalent as the prerequisite for entering the aquatic specialist program. This level would be tentative until other standards are developed.
      2. Skills in at least four of the following areas:
         a) Competitive swimming
         b) Instruction
         c) Programs for the handicapped
         d) Skin and SCUBA diving
         e) Small craft and open water
         f) Springboard and platform diving
         g) Synchronized swimming
         h) Water polo
         i) Water safety
         j) Facilities.

III. **Knowledge and Content**
   A. Aquatic specialists should know:
      1. Six other areas in which skill development (see II.A.2. above) was not attained
      2. Operation and maintenance of facilities required for programming aquatic activities.

Subject: **COMPETITIVE SWIMMING—MEN**
Chairman: CHARLES SMITH, Springfield College, Springfield, Massachusetts
Speaker: JOHN SPANNUTH, World Swimming Coaches Association, Amarillo, Texas
Recorder: MARIE SENERCHIA, Narragansett Junior High School, Narragansett, R.I.

I. Premises
   A. Aquatic competition specialists should be prepared to conduct a complete aquatic program.
   B. Aquatic competition specialists should associate themselves for four years with a competitive program while in college, although their capacity does not necessarily have to be that of competitors.

II. Individual Skill Development
   A. Male competitive swimming specialists should possess teaching skills necessary for successful coaching.

III. Knowledge and Content
   A. Male competitive swimming specialists should have knowledge concerning:
      1. Administration of aquatics
         a) Officiating and rules interpretation
         b) Eligibility and standing rules, as interpreted and discussed on the state level
         c) Planning, designing, and constructing facilities.
   B. Competitive swimming, diving, water polo techniques
   C. Reference materials
   D. Terminology
   E. Application of the physical and behavioral sciences to competitive swimming
   F. Neurology.

IV. Methodology
   A. Male competitive swimming specialists should be able to properly use videotape and film analysis.

V. Programs
   A. The program of training male competitive swimming specialists should include:
      1. Undergraduate field experience
      2. Meeting standards established for coaching certification.

Subject: **COMPETITIVE SWIMMING–WOMEN**
Chairman: **JOAN MORAN, State University College, New Paltz, New York**
Speaker: **JANET MOLDENHAUER, Wisconsin State University**
Recorder: **JOAN MORAN**

I. Premises
   A. One-third of the time spent in physical education professional courses should be devoted to the training of the aquatic specialist.
   B. Coaches will come from a highly-skilled group.
   C. Coaches will acquire lifesaving and/or water safety instruction certification in the core program.

II. Individual Skill Development
   A. Female competitive swimming specialists should:
      1. Be able to legally perform the four competitive strokes and, with a start and turn, swim a distance of 50 yards each
      2. Be able to perform one dive each from three of the five diving categories
      3. Possess the skills of officiating and judging.

III. Knowledge and Content
   A. Female competitive swimming specialists should know:
      1. The mechanics and analysis of strokes and dives
      2. Physiology regarding training and conditioning
      3. Basic hydrodynamics and physics
      4. Psychology of coaching, including philosophy and principles
      5. Administration of a meet, including rules, officiating, and judging
      6. Sources of aquatic information
      7. Types and uses of conditioning equipment.

IV. Methodology
   A. The program of training female competitive swimming specialists should include:
      1. Methods course
      2. Laboratory experience, i.e., working with a team for two competitive seasons.

Subject: **INSTRUCTION**
Chairman: **EARLE ENGLAND, Mesa College, Grand Junction, Colorado**
Speaker: **ROLAND BALCH, University of Colorado**
Recorder: **VIRGINIA YOUNG, Livingston University, Livingston, Alabama**

I. Premises
   A. There is a strong relationship between the core program and instructional specialists.
   B. The function of specialists in instruction is to teach swimming and water safety skills.

II. Recommendations
   A. Aquatic specialists should have the following qualifications.
      1. Ability to demonstrate personal swimming skills
      2. Knowledge of and practice in water safety
      3. Experiences in teaching and analysis
      4. Knowledge of the total aquatic program, including current research
      5. Knowledge of organization and administrative procedures of the various aquatic programs
      6. Knowledge of scientific principles and how they relate to water
      7. Understanding in elected areas: SCUBA, synchronized swimming, water polo, etc.
   B. This organization should work with other professional groups in establishing certification standards.
   C. Future meetings should deal with:
      1. Certification standards
      2. Evaluation procedures for the instructional specialist
      3. Examination of the relationship between the instructional specialist and the core program.

Subject: **PROGRAMS FOR THE HANDICAPPED**
Chairman: **RUTH MAGHER, Queens College, Charlotte, North Carolina**
Speaker: **GRACE REYNOLDS, YMCA, Longview, Washington**
Recorder: **RUTH MAGHER**

I. Premises
   A. Specialists should possess one of the following:
      1. Major in physical education and recreation and/or major in special education

2. Major in special education with a minor or dual major in physical education and/or recreation
3. Classification as water safety instructor or YMCA leader-examiner or equivalent, with senior lifesaving as a minimum.

II. **Individual Skill Development**

A. Specialists should be able to

1. Cooperate and communicate with participants and other persons, such as:
   a) Physicians
   b) Allied medical staff
   c) School personnel (teacher, principal, counselor, and nurse)
   d) Parents-guardians
   e) Other agency personnel
2. Assess and understand individual impairments, explain necessary modifications in teaching sequences and/or methods to the staff, and establish rapport with students
3. Establish a climate of empathy rather than sympathy with individuals
4. Realize the necessity for a continuing pre-service training program for new staff, plus continued in-service training program for them and their staff
5. Be creative.

III. **Knowledge and Content**

A. Specialists should be familiar with:

1. Physical and behavioral sciences
2. Physical education courses, plus competency in aquatics and body mechanics
3. Skills and progressions and be able to break down skills to minute steps
4. An understanding of the individual, his problems, and how he reacts to them.

B. Specialists should have:

1. Knowledge in two areas of aquatics, plus ability to use team resources
2. Ability to interpret medical prescriptions and to consult with physicians
3. Knowledge about first aid training, wheelchair operation, and prosthetic devices
4. "Knowhow" in recruitment, training, transportation, lockers, records, and pool assistants.

C. Specialists should have work opportunities in as many of these groups as possible.

1. Camps (day and residential)

2. Clubs and special interest groups (teen clubs)
3. Community centers, day care centers
4. Governmental programs
5. Playgrounds
6. Public school special education programs
7. Scouting and related service groups, semi-private agencies (YMCA, YMHA)
8. Special recreation programs and activities, aquatic programs

IV. **Methodology**

A. There is immediate need for innovative approaches in teaching the handicapped.

B. For the severely handicapped, one or more instructors or assistants may be needed per participant.

V. **Program**

A. This should involve community agencies and organizations (schools-students).

B. The program should include:

1. Training instructors, aides, and volunteers
2. Family education and awareness
3. Public relations, finances, support for program, news media
4. Personal history, medical evaluation, forms and records (progress, attendance, accident)
5. Reports to team members
6. Motivation charts
7. First aid and emergency procedures
8. Different types of programs that may be offered—educational, instructional, recreational, competitive, and rehabilitative
9. Insurance and liability
10. Program evaluation.

VI. **Facility Management**

A. Specialists should know how to adapt the following facilities

1. Building entrance, locker rooms, showers, rest rooms (able to accommodate wheelchairs in all areas)
2. Pool lift
3. Warm water
4. Divide pool according to use
5. Platforms, ramps

B. Specialists should be knowledgeable about such aspects of new facilities as:

1. Recirculating system for water purity (water chemistry): 20 ft. x 40 ft., 18,000 gallons, 50 swimmers per session x 12 = 600 per day, 3–4 hours
2. Warm air
3. Variety of designs—flat bottom, gradual slope 3 ft. x 3 ft. 6 in.
4. Adequate shallow to very shallow water

5. Portable pools
6. Telephones
7. Drinking fountains
8. Adequate deck space
9. Accessible lavatories.

Subject: **SKIN AND SCUBA DIVING**
Chairman: **JOHN LORET, Queens College, Flushing, New York**
Speaker: **THOMAS EBRO, Department of Parks and Recreation, Los Angeles**
Recorder: **LOUIS BROWN, Bernard Baruch College, New York City**

I. It was the feeling of the group that limited time prevented it from developing basic criteria for individual skills, methodology, knowledge and content, programs, facilities, and skin and SCUBA diving.

II. In view of the fact that other national organizations have developed minimum standards for skin and SCUBA diving and that the National Committee (known as Z-86 of the American Standards Institute) is developing recommendations for minimum standards for general diving education, the group has recommended that:

A. A subcommittee representing this skin and SCUBA diving group attend the Z-86 meeting in New York City in March, 1970 to present ideas as they may apply to the professional preparation of the aquatic specialist.

B. A second subcommittee be appointed to evaluate the recommendations of the Z-86 committee and to forward this evaluation to all the members of the skin and SCUBA diving group.

C. In the interim, this body adapt the policies for diving instruction certification as specified by the Council for National Cooperation in Aquatics (CNCA) for collegiate institutions. This action is subject to later review.

D. In the interim, this body adopt the standards of the member organizations of the CNCA for certification of both students and instructors. This action is subject to later review.

Subject: **SMALL CRAFT AND OPEN WATER**
Chairman: **BARBARA WILKS, Oral Roberts University, Tulsa, Oklahoma**
Speaker: **ROBERT BURNSIDE, American National Red Cross, Washington, D. C.**
Recorder: **BARBARA JEAN JORDAN, Wellesley College, Wellesley, Massachusetts**

I. Premises
   A. At the present, water related activities are the second largest recreational activity people are involved in today. The Outdoor Recreation Resources Review Commission states that water related activities will be the number one recreational activity within five to 10 years. It is the opinion of this group that small craft is one of the particular vehicles through which much of this activity will take place.
   B. According to the American Red Cross Small Craft National Director, there are in the United States approximately 43 million people, 8½ million boats, and 3,000 marinas currently involved in small craft (i.e., any craft under 26 ft.). Due to the relatively large number of fatalities resulting from lack of knowledge and skill in safe boating, this is a particularly important area for aquatic specialists.
   C. Aquatic specialists need basic training in various phases of small craft activities, including skills and knowledge of canoeing, boating, and sailing. This training should be gained in activity classes, classroom sessions, and competitive events.
   D. Aquatic specialists must also pursue a specific field, such as sailing, canoeing, or boating.

II. Individual Skill Development
   A. Specialists in small craft and open water should possess a basic level of skill competency in various types of craft including:
      1. Use and handling of small craft under all conditions
      2. Safety practices and equipment pertaining to small craft
      3. Care and maintenance of small craft
      4. Basic marlinspike seamanship.

III. Knowledge and Content
   A. Specialists should possess knowledge about:
      1. Theories related to boating, canoeing, sailboating
      2. Rules and regulations related to safe boating, etiquette, and rescue
      3. Basic piloting, selection, care, repair, and transportation of small craft
      4. Operation and maintenance of facilities
      5. Weather and environmental situations

6. Agencies providing resources and instruction (e.g., United States Coast Guard Auxiliary, United States Power Squadrons, American Red Cross, Boy Scouts, National Association of State Boating Law Administrators).

IV. **Methodology**
   A. Both theory and practice must be related in basic training; neither theory nor practice is sufficient by itself.
   B. Specialists should possess the same methodology required of physical educators.

V. **Program**
   A. It is assumed that aquatic specialists are safe in the water before they begin training in this area.
   B. Included in course content should be principles of "how to teach," with opportunity for supervised teaching experience.
   C. Aquatic specialists may not have an emphasis in the specific area of facilities operation and maintenance; however, knowledge and skill can be gained by a specific course in the program for small craft specialists.

Subject: **SPRINGBOARD AND PLATFORM DIVING**
Chairman: **ANNE FAIRBANKS, Skidmore College, Saratoga Springs, New York**
Speaker: **CHARLES BATTERMAN, Massachusetts Institute of Technology, Cambridge**
Recorder: **LORNA BURSSTAR, St. Petersburg Junior College, St. Petersburg, Florida**

I. **Individual Skill Development**
   A. Specialists in springboard and platform diving should possess experience in.
      1. Good boardwork
      2. Each of the five groups of dives
      3. All three of the diving positions
      4. At least one spinning dive
      5. The platform approach and take-off, but not necessarily from the actual platform (dry land may be used)
      6. Trampoline and/or dry land board, if available.

II. **Knowledge and Content**
   A. Specialists should have knowledge and/or skill in:
      1. Safety and accident prevention
      2. Lifesaving and first aid
      3. The mechanics of the springboard
      4. The mechanics of diving
      5. The specifics of diving

a) Groups
b) Positions
c) Training methods
d) Suggested progressions

6. Officiating and judging.

III. **Methodology**

A. Specialists should be able to teach individuals and groups in diving, with emphasis on the individual within the group. Emphasis should be given to:
   1. Psychological implications
   2. Individual teaching style
   3. Use of audiovisual aids.

IV. **Programs**

A. Specialists should have knowledge about:
   1. Instructional programs
   2. Recreational programs
   3. Competitive programs.

V. **Facility Management**

A. Specialists should know the national standards for safety and good performance and hold to these standards, particularly in relation to new construction.

B. Specialists should be responsible for the care and inspection of the diving facility and surroundings.

Subject: SYNCHRONIZED SWIMMING
Chairman: BETTY BEESE, Albion College, Albion, Michigan
Speaker: IRIS ANDREWS, Bowling Green State University, Bowling Green, Ohio
Recorder: MARTHA WASHINGTON, University of Georgia

I. **Individual Skill Development**

A. Specialists in synchronized swimming should have the ability to perform the following skills.
   1. Breath control
   2. Body positions
   3. Skill in composition
   4. Skill in officiating
   5. Basic stunts
   6. Sculling
   7. Stroking

II. **Knowledge and Content**

A. Specialists should have knowledge concerning:
   1. Music analysis
   2. Application of dance to synchronized swimming
   3. Movement analysis
   4. Choreography
   5. History, background, organization, resources

6. Officiating and judging
7. Stage productions
   a) Lighting
   b) Costumes
   c) Sound and music
   d) Staging
   e) Makeup.

III. **Methodology**

A. Specialists should be able to effectively:

1. Review basic organizations and approaches to teaching of groups
   a) Mass drill
   b) Movement exploration
2. Review basic strokes and teaching of variations in technique as applied to synchronized swimming
3. Use progressions from simple to complex as applied to basic body positions in techniques of teaching stunts
4. Construct lesson plans
5. Use demonstration and explanation.

IV. **Program**

A. Specialists should be able to effectively develop these aspects of the synchronized swimming program.

1. Skill
   a) Beginning
   b) Intermediate
   c) Advanced
2. Methods
   a) Theory
   b) Analysis
   c) Competition
3. Production
   a) Staging
   b) Choreography
4. Practical participation
   a) Clubs
   b) Productions

V. **Facility Management**

A. Specialists should be able to make effective use of:

1. Area design
   a) Audience in relation to swimmers–bleachers
   b) Entries and exits
   c) Location of controls
2. Electrical facilities
   a) Record player
   b) Tape recorder
   c) Microphones
   d) Underwater speakers

3. Construction or adaptations pertinent to synchronized swimming
   a) Depth
   b) Size
   c) Mirrors
   d) Windows
   e) Underwater lighting and sound
4. Mechanical technology
   a) Visual
      (1) Lighting
      (2) Videotape
      (3) Films
      (4) Photos
   b) Sound
      (1) Speakers
      (2) Acoustics
      (3) Music reproduction
5. Storage
   a) Props
   b) Costumes.

Subject: WATER POLO
Chairman: RUTH JOHNSON, West High School, Davenport, Iowa
Speaker: CHARLES HINES, West Asheville YMCA, North Carolina
Recorder: RUTH JOHNSON

I. **Premises**
   A. Every aquatic specialist should have an appreciation of water polo.
   B. The objectives of water polo should be to develop a high level of individual skill, in addition to an understanding of the strategy, officiating, values, uses, and possible adaptations of the game.

II. **Individual Skill Development**
   A. Water polo specialists should possess:
      1. Proficient swimming skills
         a) Front crawl—head up
         b) Back crawl—adaptation
         c) Quick starting, stopping, changing directions
         d) Ability to maintain a horizontal body position
         e) Eggbeater kick
      2. Ball-handling skills
         a) Picking up the ball from on top, from the bottom, while in place, and while moving
         b) Spinning with the ball
         c) Receiving the ball (both wet and dry)
         d) Propelling the ball in the water—dribbling, walking the ball

e) Passing and/or shooting—overhand, push, pop, backhand, sweep, tip, etc.

3. Basic guarding skills
   a) Man-to-man defense and positioning
   b) Various zone defenses and positioning
   c) Switching
   d) Tackling and ball-stealing
4. Goaltending skills
   a) Leg positions and leg kick (eggbeater)
   b) Arm and hand positions
   c) Positions in the goal to defend against hard straight shot, angle shot, and lob shot
   d) Offensive and defensive quarterbacking.

III. **Knowledge and Content**

A. Water polo specialists should know:
1. History of water polo
2. National rules of the game as set by the National Collegiate Athletic Association, as well as an understanding of the international rules
3. Hydrodynamics technology as related to biomechanics, physiology, and body mechanics
4. Techniques for conditioning and training individuals for water polo.
5. Adaptations of the game or skills to fit individual situations, such as:
   a) Small pools
   b) Class situations
   c) Low swimming skills
   d) Lead-up games
6. Defensive systems of play
   a) Set offense
   b) Swimming offense
   c) Ball side break
   d) Two on one or extra player offense, etc.
7. Offensive systems of play
   a) Man-to-man
   b) Zones
   c) Short man defense
8. Psychological aspects of coaching water polo
9. Planning and administering a competitive water polo season.

IV. **Methodology**

A. Specialists must be skilled in:
1. Planning for logical skill development
2. Use of drills for skill development
3. Application of skills in a competitive situation.

V. Programs
   A. Specialists must be cognizant of the program development in
      1. Schools
         a) Instructional
         b) Recreational
         c) Intramural
         d) Competitive
      2. Agencies
         a) YMCA
         b) Park and recreational departments
         c) Amateur Athletic Union.

VI. Facility Management
   A. Specialists must be skilled in:
      1. Building of goals to fit the facility
      2. Scheduling of available time
      3. Encouraging the planning of sufficient deep water areas for new facilities
      4. Protection of windows and lights.

OPPOSITE PAGE: Air structure
(Photo M. Alexander Gabrielsen)

THE FIRST PHASE of the conference outlined aquatic competencies possessed by all physical educators. The second phase dealt with a more precise listing of competencies for those who wish to specialize in one of the various aquatic areas. The third phase is concerned with the experiences which should comprise the education of those desiring to concentrate their professional training in aquatics. This dialogue focuses upon individual skill development, knowledge and content, methodology, programs, and facility management, all of which should be included in programs leading to a concentration in aquatics.

BASIC AQUATIC EDUCATION

FOR A CONCENTRATION IN AQUATICS

ADDRESS

WILLIAM CAMPBELL
Assistant Professor and Swimming Coach
Department of Physical Education
University of Maryland, College Park, Maryland

BASIC AQUATIC EDUCATION FOR A CONCENTRATION IN AQUATICS

In this third phase of our conference we are interested in the basic education of the aquatic specialist. As we face this task ahead of us we must be realistic. Many of you have served on a curriculum committee in your individual colleges and universities and know how difficult it is to have new courses put into the curriculum. Nonetheless, in our basic education we have to set standards that will give students flexibility to experiment. We must develop in them the ability to evaluate the curricula and eliminate the materials that have been perpetuated in ignorance for a great many years. These newly trained experts are not going to parrot what has been done for many years. We have had too much of this in the past. The throwing of the head back as the rotational movement in the back dive should be eliminated, as well as the riding of the hands in the catch in the crawl stroke and the forceful extension of the knee joint while flutter kicking. We still see the stiff leg flutter kick. We have to prove through research that the drowning person will let go of the rescuer if he is forced underwater.

We want the new ideas of these young keen minds. In our coaching, we are putting the future experts through much greater experiences of stress than we ever experienced. They will give us so much more information from their actual experiences on how they felt, and how they could have been helped even more if we, their coaches, had only known how to help them.

In 1949, a study was made on the curricula, facilities, and graduation requirements of the universities and colleges in the United States which offered a physical education major to male students. The results showed that facilities for aquatics were far below standard for the preparation of students for professional leadership in aquatics. Since then, great strides

have been made in the area. Wonderful facilities have been built and more are on the drawing boards.

It is also interesting to note that this study showed that the American Red Cross aquatic program was held in sufficiently high esteem to be regarded as more than adequate to prepare students for professional leadership in aquatics. I know that numerous professionals in aquatics have expressed differences of opinion with the ARC. In defense of their program, I would like to state that the ARC is not trying to set up a program that will prepare young people for professional leadership in aquatics. They do not claim this as their job. Rather, the Water Safety Service, which is only a part of the ARC, is greatly concerned for the total personal safety of people throughout the entire world.

I have been told that the majority of new water safety instructors who are certified each year come from the college and university instructor training courses. In all probability, if you have had problems with the new changes in the ARC program it is because the individual who is orienting you is unfamiliar with the program's basic principles.

Before we specifically discuss basic education for a concentration in aquatics, I would first like to define concentration in aquatics as the act of focusing all one's thoughts and efforts in an attempt to increase the scope and depth of experiences and knowledge of aquatics. Secondly, I believe we should list those occupations which we are preparing our students to enter. They are:

1. Director of aquatics in a college or university
2. Director of aquatics in elementary and/or secondary school system
3. Aquatic director in large urban recreational program
4. American Red Cross area or state director
5. YMCA–YWCA and YMHA–YWHA aquatic director on state and area levels
6. Aquatic director in the Boys Clubs of America
7. President of large management firm

As to the basic education that we should make available to these students, I would like to present the aquatic curriculum that is offered to the students of the University of Maryland. I do not believe it is necessary to state that the aquatic expert should have a background in health and physical education. With this educational training he will acquire an understanding of anatomy, physiology, kinesiology, physics, chemistry, and bacteriology. At the University of Maryland we have one semester hour courses in the following areas: beginning and intermediate swimming; advanced swimming; lifesaving and water safety; fancy diving; boating and canoeing; and water safety instruction. Two semester hour courses are available in methods of aquatics;

coaching swimming and diving, and kinesiological and mechanical analysis of swimming and diving We are in the process of establishing a course in pool management that will meet the requirements for a pool manager in two of Maryland's most populated counties.

I like to believe that this curriculum is much like the basic education we want to provide for our aquatic students. I believe we then have to supplement this type of education with readings and research. Students should know what has been written and filmed. They should be instilled with a desire to pursue knowledge in the field of aquatics.

With this basic background we have to foster an attitude of aquatic professionalism. We have associations, but we need one big strong aquatic organization, comparable to the United States Professional Golfers Association or the American Lawn Tennis Association. We also need to educate the American public. Perhaps the Aquatics Council of the General Division of the American Association of Health, Physical Education, and Recreation is the answer.

Tom Ebro earlier mentioned a contractor in California whose firm was willing to pay $20,000 a year for the services of an aquatic specialist. Many of you were amazed by this salary. Such remuneration does not amaze me. I know many men who have a concentration in aquatics with a basic education that is quite limited who are currently earning in excess of $20,000 a year. During the summer, they are employed by the big clubs that are unafraid to charge a proper fee for swimming lessons. They serve as consultants for new pools and equipment. These are the individuals whom the swimming world and the swimming public come to with their questions and problems. Some people have criticized these specialists for selling their services and knowledge, as well as aquatic materials. Yet, professionals in other fields, such as engineering, agriculture, and textiles, are not criticized for performing similar functions. Perhaps in this materialistic world we m 'ıt be able to employ better minds in our field if financial compensations were greater.

As we, the professionals, embark upon establishing standards in individual skill development for the aquatic specialist, we must decide whether we want the specialist to be highly proficient in all phases of aquatic skills or whether he should limit his proficiency to the knowledge and content of the skills in question. I have always felt that it was unnecessary to be highly skilled in order to qualify as a specialist, even though it is evident that the top aquatic professionals are highly skilled.

We also have to establish standards in methodology. Many of the men and women who have taught for years believe that their method is the best way to teach, the best way to conduct swimming practice, the best way to test a canoeing class. Is it possible that better methods exist? We must synthesize the old and the new in order to provide a basic education for a concentration in aquatics.

DISCUSSIONS

BASIC AQUATIC EDUCATION FOR A CONCENTRATION IN AQUATICS

Chairman: CHARLES BUTT, Bowdoin College, Brunswick, Maine
Speaker: JOHN LORET, Queens College, Flushing, New York
Recorder: CLARYCE HOMBERG, Senn High School, Chicago

I. Individual Skill Development
   A. The following individual skills should be required.
      1. Certification as water safety instructor, YMCA leader-examiner, or equivalent
      2. Qualifications as a specialist in one or more areas
      3. Individual skill experience in five of the following eight aquatic areas:
         a) Instruction
         b) Handicapped
         c) Small craft
         d) Competition
         e) Skin and SCUBA diving
         f) Synchronization
         g) Springboard and platform diving
         h) Water sports

Chairman: FRED MURPHY, University of Colorado
Speaker: RALPH BIBLER, University of Colorado
Recorder: EARLE ENGLAND, Mesa College, Grand Junction, Colorado

II. Knowledge and Content
   A. The aquatic concentration program may encompass postgraduate study.
   B. The following theoretical experiences are necessary for a concentration in aquatics.
      1. Aquatic administration
         a) Program construction and promotion
         b) Maintenance and operation of facilities
         c) Public health and disease control
         d) Safety
         e) Public relations
         f) Scheduling
         g) Budget and finance
         h) Tort liabilities
         i) Personnel management

2. Research and resources
   a) Research and evaluation
   b) Data processing
   c) Instructional materials and media
   d) Facility planning, design, and construction
3. History and development of aquatics

C. The following practical experiences are necessary for a concentration in aquatics.
1. Experience in all 10 areas (core, instruction, competition, handicapped, skin and SCUBA diving, small craft, springboard and platform diving, synchronization, water polo, and facilities)
2. Internship experience
   a) Supervised teaching
   b) Aquatic administration
   c) Operation and maintenance of facilities
3. Special advanced teaching techniques (handicapped, research)

Chairman: JOANNA MIDTLYNG, Indiana University
Speaker: THOMAS KRIZAN, University of Illinois
Recorder: PINA YOUNG HORNSBY, Mississippi State College for Women

III. Methodology

A. The need, faculty, and facilities should determine whether a school offers a concentration in aquatics.
B. This concentration is most apt to be undertaken at the graduate level, although certain students with prior competencies may complete the concentration as an undergraduate.
C. Competency is recommended in the following areas.
1. Communication and sensitivity to humans
2. Organization and administration of aquatic programs
3. Pool and waterfront construction and pool, waterfront, and saltwater beach management
4. Curriculum design for the above mentioned situations

D. The following methods are suggested to develop these competencies.
1. Seminars, problem-solving discussions, and readings regarding present and future aquatic concerns, (e.g., eligibility rules and regulations for both foreign and domestic situations, population explosion, pollution)

2. Apprenticeships, field work, in-service training, and other integrated experiences with outside agencies

E. The qualifications, evaluations, and certifications for this area will have to be considered at a future date.

Chairman: DON VAN ROSSEN, University of Oregon
Speaker: ROLAND BALCH, University of Colorado
Recorder: PATRICIA DAVIS, Madison College

IV. Programs

A. It was the recommendation of this group that:

1. To meet the need—as illustrated by job opportunities, salary levels, and job related responsibilities—the aquatic concentration should be a specialized and complete offering
2. Courses in aquatics be offered co-educationally at the undergraduate and graduate levels
3. A high level of individual aquatic skills be complemented by the following content:
   a) Design and construction of aquatic complexes
   b) Promotion and financial management
   c) Control and evaluation systems
   d) Personnel
   e) Scheduling
   f) Legal aspects
   g) Public relations
   h) Health and safety regulations
   i) Maintenance and operations
   j) Supervising control
   k) Office management
4. Internship includes general experience and specialization.

Chairman: JOHN LEWELLEN, Ball State University, Muncie, Indiana
Speaker: DAVID THOMAS, State University of New York, Binghamton
Recorder: JOHN LEWELLEN

V. Facility Management

A. It was the recommendation of this group that:

1. The individual who concentrates in facilities must have the background of the aquatic specialist or its equivalent
2. The education of the individual who concentrates in facilities should take place on the graduate level and consist of in-depth study through courses, clinics, and workshops.

1

2

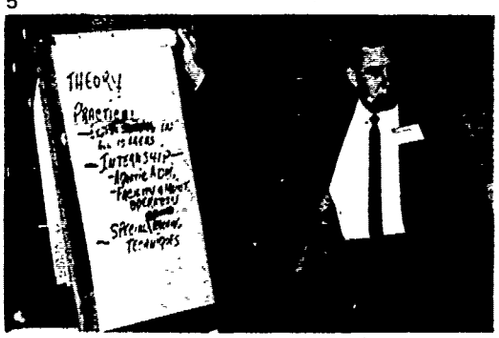
3

1. Speaking out at seminar on pool administration
2. Small discussion groups in action
3. A glimpse of a variety of reactions
4. William Campbell
5. Ralph Bibler
6. John Bell

OPPOSITE PAGE Rim flow type gutter (Photo. M. Alexander Gabrielsen)

4

5



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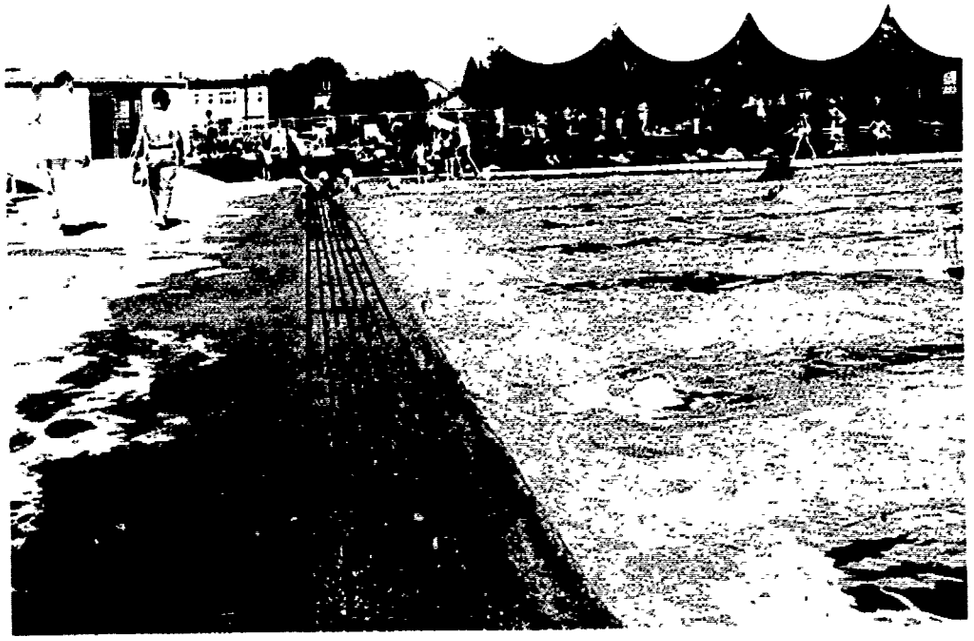
THE PURPOSE of the seminars—which occurred between each general phase of the conference—was to permit an in-depth presentation on topics of special interest. The reports which follow are mainly summaries of each speaker's presentation, while others represent group interaction following the presentations.

SEMINARS



SEMINAR

ADAPTING CONDITIONING PROGRAMS FOR OPTIMUM USE OF FACILITIES

Chairman: WILLIAM CAMPBELL, University of Maryland
Speaker: BRUCE HUTCHINSON, Southern Connecticut State College
Recorder: CHARLES ARNOLD, University of New Hampshire

I. Steps in Planning for Optimum Utilization of Available Space and Time
   A. Determining program goals
   B. Analyzing unique factors affecting the program
   C. Determining the type of conditioning and pool organization to be used

II. Factors Determining Program Goals
   A. Age and sex of swimmers
      1. The younger the swimmers, the more time on basic mechanics and techniques
      2. Age dictating types of conditioning
   B. The stage in the overall season (e.g., pre-season, during dual season, pre-championship)
   C. Whether major program emphasis is on dual meets or on championship

III. Unique Factors Influencing a Program
   A. Pool time allotted
   B. Size of pool
   C. Size of squad
   D. Proportions of novice and experienced swimmers
   E. Practice materials available (kick boards, pace clocks, etc.)

IV. Adapting Conditioning Programs
   A. Purposes of conditioning
      1. Increase size of muscle fibers
      2. Increase number of capillaries
      3. Increase speed, power, strength, and endurance
      4. Improve neuromuscular coordination
      5. Increase heart size and efficiency
      6. Facilitate cardiorespiratory recovery after exercise
   B. Five major classifications of water conditioning

1. Interval training
   a) Under-distance swimming coupled with short rest periods
   b) Distance usually equalling one-fourth of distance to be swum in race
   c) Rest interval (roughly equal to time spent in swim)
   d) Effort being from 70% to 90% of speed of all-out swim
   e) Example: fifteen 100 yard swims with 60 second rest interval between swims
2. Repeating training
   a) Repeating a series of swims with rest interval between swims of a duration sufficient to permit pulse rate to return to near normal
   b) Distance shorter and pace faster than in race to be swum
   c) Emphasizing quality or speed, rather than endurance
   d) Example: six 100 yard swims with a four to five minute rest period between swims
3. Over-distance training
   a) Over-distance swimming at a relatively steady pace
   b) Distance usually 800 to 1,600 yards
   c) Pace being such that pulse rate maintained at 120 to 140 beats per minute
   d) Purpose—develop endurance
4. Fartlek or "speed play" training
   a) Continuous swimming interspersed with sprinting and swimming easily
   b) Purpose—endurance though increase in proportion of sprint resulting in increased speed
   c) Example: sprinting 50 yards, swimming easily 100 yards, sprinting 25 yards, swimming easily 50 yards
5. Sprint training
   a) Short distance swimming in an all-out effort
   b) Usually stressing holding the breath
   c) Purpose—develop strength and ability to tolerate oxygen debt
   d) Examples of distances: 25, 50, 75, or 100 yards

C. Out-of-water conditioning programs supplementing pool work
   1. Purpose—develop strength and flexibility
   2. Resistance training
      a) Isocentric, isometric, and isokinetic with such devices as barbells, Exer-genies, shock cords, mini gyms, and swimulators. Also calisthenics
      b) Purpose—develop muscle groups specific to swimming

3. Circuit training
    a) Consisting of a series of stations emphasizing resistance, calisthenics, and running, the individual moving through the circuit of stations
    b) Made progressively more difficult by decreasing the time in which circuit must be completed and by increasing resistance or number of repetitions at each station
    c) Aiming at developing endurance and strength of both muscular and cardiorespiratory systems

V. Determining Pool Organization
  A. Criteria for selection for most effective use
    1. Allowing for smooth operation of swimmers
    2. Allowing for adequate distances
    3. Providing devices for timing of swimming and rest periods
    4. Placing swimmers according to speed
  B. Five basic pool organization patterns
    1. Wave pattern
      a) Best in terms of control and coaching
      b) Swimmers abreast in waves or heats
      c) About 12 freestyle or backstroke swimmers, or nine breaststroke or butterfly swimmers, in a single wave
      d) Odd length swims may be 25 yards, 75 yards, etc.
      e) Chase waves involving two waves stationed at opposite ends of pool; the second wave starting when the first wave halfway through its last length
      f) Using three waves—two waves going an even number of lengths and one wave going an odd number of lengths
    2. Circle pattern
      a) Five or six swimmers utilizing the same lane
      b) Swimmers starting at five or 10 second intervals
      c) Fastest swimmers starting first, followed by slower swimmers
      d) Limiting freestyle and backstroke swimmers to one lane and allocating one and a half lanes to breaststroke and butterfly swimmers
      e) A disadvantage—turns being different in practice than in race
    3. Snake pattern
      a) Swimming down the line and back the gap, then down the next line and back the gap, etc.
      b) Corner snakes—two groups, each starting from different corners at the same end of the pool

c) Can be used for interval and repetition, most often used for spring work

4. Cross-pool patterns
   a) May be wave or circle
   b) Coach perhaps requiring swimmers not to use push-off
5. Pool-side patterns
   a) Kicking--swimmers holding onto side
   b) Pulling--swimmers hooking feet in overflow trough
   c) Whole stroke--swimming against shock cord, Exer-genie, or rope
   d) Usually on time basis equivalent to time required to progress a distance
   e) Example: kicking seven minutes (equivalent to 400 yards)

VI. **Training Program at Southern Connecticut State College**

A. September until November

1. Four-phase practice session--two groups practicing simultaneously
   a) Group A in water, Group B in weight training or circuit training
   b) Groups switching positions
   c) Group A in water, Group B in calisthenics
   d) Groups switching positions
2. Circuit training three days a week, weight training twice a week
3. Circuit training comprising 10 stations, including squat thrusts, upright rowing, sit-ups, three-quarter squats, military press, push-ups, curls, heel raises, and running the bleacher seats
4. Resistance training consisting of 10 stations, including military press, bench press, pull-overs, bent rowing, end-of-stroke, elbow rotators, and forward rises
5. Almost all water work being over-distance--3,000 to 4,000 yards daily, alternating day of hard workout with day of easy workout
6. Once every two weeks, a day for filming swimmers and analyzing techniques

B. November

1. Eliminating circuit training and weight training for most swimmers
2. Primarily repetition and interval work in circle pattern
3. Some time each day on sprints in wave pattern
4. Before first meet, cutting back on distance and concentrating on repetitions and sprints

C. Dual meet period
   1. Rarely exceeding 2,500 yards in a day
   2. Working hard on Monday and Tuesday and moderately on Wednesday and Thursday
   3. Using relay pickups, starts, and turns on Friday
   4. Some time each day on sprints and wave pattern
   5. Two practice sessions daily during Christmas and semester breaks
      a) Over-distance and Fartlek in morning
      b) Repetition and interval work in afternoon
      c) Approximately 5,000 yards daily

D. After dual meet season and before championship meet
   1. Planning workouts to suit the individual
   2. Concentrating primarily on high quality repetition work

SEMINAR

CONSTRUCTION AND DESIGN OF INDOOR SCHOOL SWIMMING POOLS

Chairman: A. W. THIESSEN, Canadian Red Cross Society, Toronto
Speaker: M. ALEXANDER GABRIELSEN, New York University
Recorder: LIONEL McILWAIN, University of Toledo

I. Why Schools Should Have Swimming Pools

A. The first half of the twentieth century produced many technological and social changes which directly influenced public education in the United States. Both the curriculum and the design of school plants have undergone many changes. Schools at one time were planned with little or no provision for physical education and recreation space. Today, it is not uncommon for high schools to be located on sites of 40 or more acres. In 1900, there were few, if any, indoor pools in public schools in the United States. By 1970, it is anticipated that there will be over 2,500 swimming pools in public schools. In 1940, there were only 10,000 swimming pools in this country. By 1970, it is estimated that the number will reach six million.

B. Swimming is America's number one outdoor recreation activity. More people participate in water activities than in any other form of leisure activity.

C. Each year, approximately 8,000 people in the United States drown. Most of them did not know how to swim or swam very poorly. This number would be reduced markedly if every person above the age of five knew how to swim.

D. In interest studies conducted among elementary and secondary students swimming is always number one.

E. A school swimming pool is truly a "community facility." It has the capacity to serve the total community through programs scheduled after school and on Saturdays and Sundays.

F. The cost of swimming pools is relatively low when computed on a use–cost ratio and compared with other school facilities (e.g., auditoriums, science labs, industrial arts classrooms).

G. Knowing how to swim is a prerequisite to many other aquatic activities, among which are surfing, sailing, canoeing, motor boating, fishing, hunting, SCUBA diving, and water skiing.

II. Why All Schools Do Not Have Swimming Pools

A. The factors which cause a school not to have a swimming pool may be divided into two parts—factors which influence school boards and/or communities from excluding swimming pools in new school building projects and factors which cause swimming pool referenda to be defeated by local taxpayers.

B. The following are factors behind the refusal of communities to include swimming pools in new school projects.

1. Many people regard swimming pools as an "educational frill." This attitude is symptomatic of a lack of understanding of the educational significance of a well-conducted aquatic program.
2. Many state education departments take a weak, "watered down" stand regarding the place or priority of swimming pools in new school buildings. Some even fail to recognize the pool as a teaching station which contributes to a good physical education program.
3. There is an absence of dynamic leadership in the community to spearhead a drive to get a swimming pool incorporated in the plans of a new school building.
4. There is the lack of a definite statement from state departments regarding the role a school may play or should play in promoting aquatic instruction.
5. Far too often school board members lack courage to place a swimming pool proposal before the taxpayers in view of rising school costs.
6. There is fear that the yearly operating cost of a pool will be so high that the community cannot afford it (which, incidentally, is false).
7. Pools have often been seriously considered by boards of education and finally withdrawn from plans because of demands made by the physical education staff or the director. When a staff is asked to indicate to the board the requirements for a pool and detail specifications they often submit plans which include "nothing but the best." Such items as underwater windows, underwater lights, three-meter diving boards, excess deck space, elaborate window arrangements and glass doors, excessive deep water, and expensive gutter design are all good but nonessential to an effective aquatic program.

8. Physical education programs have been dominated too much by one sport, basketball. Because of the high construction cost of gymnasiums, other equally desirable facilities, including swimming pools, have been "choked out."
9. Many school architects have never planned a swimming pool. Since they have great influence on boards of education, school architects often serve as an obstacle to the inclusion of swimming pools when they are not conversant with the latest knowledge of pool design, construction, and cost. Invariably, they "over-design" the pool, making it more costly than necessary.
10. There has been a failure to adequately study the need for a school swimming pool in the community. When the need has not been clearly established, there is a lack of public acceptance that swimming instruction is a legitimate function of schools.

C. The following are factors which cause the defeat of referenda for swimming pools.
   1. Even after school boards have agreed to include a pool in a new school, many are defeated at the ensuing referendum. In a study of school districts where pools were defeated by the taxpayers, it became apparent that any one of many factors could have caused it. Here are some which were identified
      a) Splitting the school building referendum so that the swimming pool was listed as a separate proposition
      b) Lack of unanimous support from the board of education members
      c) Inadequate public relations program prior to the referendum
      d) Too high a "price tag" on the pool
      e) Inordinately high school or city tax rate
      f) Lack of community confidence in the board of education
      g) Poor timing in submission of the pool proposal to the voters
      h) Attempt to get approval for a too elaborate pool
      i) Disputes over the proper location of the pool (high school, junior high, or elementary school building)
      j) Lack of acceptance by people as to the place of aquatics in the school curriculum
      k) Opposition to the pool by parents whose children attend private school
      l) Social unrest in the community

III. **Objectives of a School Swimming Program**

A. Ideally, swimming should be a required unit of instruction during each year of a child's school experience. The swimming program more realistically should be labeled the "aquatic program," since the content of a good program extends beyond swimming. The objectives of a school aquatic program should include at least the following.

1. Teach pupils to acquire the skills and knowledge to be safe swimmers.
2. Teach the fundamentals of water safety to all pupils and aid the more able and mature swimmers to qualify for a lifesaving certificate.
3. Use swimming and aquatic exercises to aid individuals to develop and maintain physical fitness.
4. Provide a balanced schedule of instruction and practice during extra class periods for upper elementary and secondary school pupils. The program should offer enriched opportunities for advanced swimming and wide participation in aquatic activities.
5. Offer extended educational opportunities in swimming and water safety during evening hours for youth, adult, and family groups, and in the summer, for pupils.
6. Aid and encourage the individual to develop the attitudes, skills, and knowledge he needs for safe and satisfying participation in aquatics throughout his life.

IV. **Elements of a Good School Aquatic Program**

A. The aquatic program should be multi-activity and extend throughout the entire school year to satisfy the needs of the members of the school, club, and community. There are three basic aspects of an adequate school aquatic program.

1. School day program–involves basic instruction to all students as part of the school curriculum
2. After school and vacation program–usually recreational in character; includes competitive swimming
3. Public program–both instructional and recreational, allows all the people of the community a chance to participate

B. Boys and girls physical education departments as a rule equally divide the school day periods throughout the entire school year. The after-school program for boys, which should be scheduled during the entire year, includes time for recreational swimming, competitive swimming and diving, and water polo. As the year progresses, classes in all sections of Red Cross lifesaving should be

offered, as well as opportunities for instruction in SCUBA diving and in other special aquatic interests.

C. Girls enjoy the same activities as boys. There are also many coed activities which can be offered using the above program, and once each year a joint water show should be arranged for the community.

D. In addition to the responsibilities of giving the student body a well-planned, multi-activity, year-round aquatic program, every school system should offer opportunities for the general public to use the swimming pool. There is a need for adult instruction as well as for family "free fun" nights, which are very popular.

E. School systems should offer opportunities for preschool children to learn to swim. Classes can be offered on Saturday morning during the school year and daily during the summer months. There is good opportunity for a cooperative effort between the school and the local recreation department in the use of the swimming pool during the off-school hours. There have been numerous cases of this type of cooperation even to the extent of financing the initial construction costs of the pool, which then becomes a joint venture.

V. How to Acquire a School Pool

A. To get a pool for a new school or to add one onto an existing school takes considerable planning and study. It involves a number of steps which one may summarize as follows:

1. Someone must first conceive of the idea of a pool for a school.
2. The need for the pool must be clearly established.
3. Other pools in the community or adjacent communities should be studied. Also a review of published material on swimming pools should be undertaken.
4. Data on pool construction and operation costs should be obtained.
5. The idea for a pool should be presented to the appropriate administrative authority, principal, or superintendent of schools.
6. The administrative authority usually determines whether further preliminary study is necessary or whether the involvement of other people is desirable.
7. The idea, accompanied by supporting data, is presented to the board of education for consideration and approval.
8. Once the board gives tentative approval, a person, or preferably a pool committee, should be appointed to prepare a "program design" (statement of program requirements and

specifications). A pool consultant can be valuable at this point. He will not only save money, but will be extremely helpful in avoiding mistakes. He will make certain that the school gets a good pool.

9. The "program design" is submitted to the board of education. After approval, the statement is transmitted to the architect who has been engaged by the board to design the pool.
10. The architect prepares preliminary plans and cost estimates, which are then submitted to and reviewed by the board of education and the pool committee.
11. The school building proposition, which includes the pool, is submitted to voters when a referendum is required.
12. Upon approval of the voters (or the board, when referendum is not required), the architect is instructed to proceed with contract drawings (i.e., architectural and engineering plans).
13. Plans and specifications are advertised for bids from eligible contractors.
14. Bids are received by the board and contracts for construction are awarded.
15. Construction takes place. A board representative supervises the construction (this person is often referred to as the "clerk of the works").
16. Construction is completed. The pool is inspected by the board and the architect and is either accepted or rejected.
17. Staff receives orientation to the pool and instruction in the care and use of the facility.
18. Dedication of the pool (or school building) and use of the facility begins.

B. It is essential that the physical education director make certain that the plans and specifications are followed to the letter. Any "change order" involving the pool should be approved by the director.

VI. Major Design Decisions

A. There are many important decisions which must be made when a pool is designed. Some need to be made by the professional staff alone, others in cooperation with the architects. Many can be made only after researching or studying the problem. They should all appear in the "program design" statement prepared by the professional staff.

1. The nature of the program to be conducted in the pool
2. Overflow system to be used
3. Specific dimensions and shape of pool
4. Depth of water and bottom contour

5. Type of finish in pool basin and decks
6. Type and location of all equipment (diving boards, lifeguard stands, etc.)
7. Filters
8. Method and type of water treatment system
9. Construction material
10. Amount of deck area
11. Acoustical treatment necessary
12. Climate control desired
13. Intensity and illumination
14. Underwater lights
15. Underwater observation window
16. Location and size of offices and storage room
17. Number of spectators to be accommodated

VII. **Cost of Pools**

A. All costs indicated below are based on a pool size 75 ft. x 45 ft. (i.e., 3,375 sq. ft. of water surface). This includes filter system and piping to and from pool (1969 prices). A range of cost is given since many of the pools referred to are "package" pools supplied by a manufacturer or a pool building firm. The materials and designs vary sufficiently to produce a range in price. Also to be considered is the geographic location which may directly affect cost.

1. Above ground portable shallow water pool (rigid frame with vinyl liner)
   Range $8,900 to $13,000 ($2.65 to $4.00 per sq. ft.)
2. Above ground shallow water aluminum or steel pool (rigid frame with vinyl liner)
   Range: $18,000 to $25,000 ($5.30 to $7.30 per sq. ft.)
3. In ground dry-pack concrete shallow water pool
   Range: $27,000 to $30,000 ($8.00 to $9.00 per sq ft.)
4. In ground liner type shallow water pool
   Range: $15,000 to $17,000 ($4.00 to $5.00 per sq. ft.)
5. In ground aluminum or steel pool with diving hopper
   Range: $35,000 to $40,000 ($10.50 to $12.00 per sq. ft.)
6. In ground fiberglass pool with diving hopper
   Range: $35,000 to $40,000 ($10.50 to $12.00 per sq. ft.)
7. In ground pressurized concrete (gunite) skimmer type pool with diving hopper
   Range: $40,000 to $45,000 ($12.00 to $13.50 per sq. ft.) If recessed type of gutter is used, add $5,000 to $10,000.

8 Reinforced poured concrete pool with diving hopper
Range: $57,000 to $100,000 ($17.00 to $29.50 per sq. ft.)
Note: If diving hopper is eliminated, reduce cost by $5,000 to $10,000.

VIII. **Cost of Pool Enclosures**

A. There is a fantastic range in the cost of pool enclosures. The figures given below are for comparison purposes. Prices will vary from one part of the country to another due to labor and material costs. The square foot cost given is for the natatorium only and does not include the pool locker rooms or filter room. Prices are based on 1969 figures. At this time, construction costs are rising about 10% each year.

1. Air structures
   Range: $2.50 to $3.50 per sq. ft.
2. Lightweight metal frames with fiberglass or plastic panels
   Range. $4.00 to $6.00 per sq. ft.
3. Prefabricated, metal frames and metal skin structures
   Range: $4.50 to $7.50 per sq. ft.
4. Prefabricated, lightweight aluminum dome frames supporting reinforced plastic roof tents of acrylic panels
   Range: $7.00 to $9.00 per sq. ft.
   Note: All four of the above low cost pool enclosures, because of their designs, possess problems which must be overcome, namely, loss of heat, acoustical and light control, ventilation, and maintenance.
5. Laminated wood frame structures with either plastic or wood roofs
   Range: $12.00 to $14.00 per sq. ft.
6. Masonry walls and piers supporting wood beams and roof
   Range· $14.00 to $16.00 per sq. ft.
7. Steel frame with masonry or fireproof panel walls, steel roof trusses, beams or joists, fire-resistant metal, or concrete plank roof deck
   Range: $18.00 to $25.00 per sq. ft.
8. Masonry or precast concrete walls and precast concrete roof beams
   Range: $16.00 to $20.00 per sq. ft.
9. Steel or concrete piers, masonry or panel walls, steel cable-supported roof
   Range: $15.00 to $18.00 per sq. ft.
10. Open sky dome with infra-red heating units with lightweight nylon skin for use in areas which have severe winter climates
    Range: $14.00 to $18.00 per sq. ft.

IX. Cost Differentials Between Pools

A. One finds a tremendous range in the cost of school pools. Every decision which is made relative to the design or operation of a pool affects the cost. For example, the difference between a skimmer pool and a fully recessed gutter pool may be as much as $8,000 to $10,000 depending upon the size of the pool and gutter configuration. The following are cost variables. (The figures are for comparison purposes only. They are based on 1969 costs and refer again to a pool 75 ft. x 45 ft.)

1. Finish used in pool basic

Unfinish concrete:	0
Painted surface:	$ .30 per sq ft
Plaster surface:	$1.00 per sq. ft.
Tile surface:	$3.00 per sq. ft.

2. Depth of water
   All shallow water pool, which is the least costly
   When diving hopper is added, the cost may increase by $5,000 to $10,000. Furthermore, if it is an indoor pool and a three-meter platform is included, the need for greater ceiling height could raise the cost by $50,000.
3. Overflow system (gutter)
   Between the skimmer pool to the fully recessed gutter pool, the differential may be as much as $10,000.
4. Construction material
   From vinyl liner, which is the least expensive, to reinforced poured concrete, which is the most expensive, the differential may be as much as $75,000.
5. Underwater lights
   From $80 per light to $150 or more per light
6. Underwater observation window
   From $300 to $3,000, depending on size and design
7. Diving stands
   One-meter with board—$200 to $800
   Three-meter with board—$600 to $1,200
   Note. The major factor here is that both the depth of water and the height of the ceiling are affected when a three-meter platform is included. It could increase the cost of the pool by as much as $20,000 to $50,000, depending on the architect's solution to the problem.
8. Other factors
   Local building code requirements
   Life expectancy desired

Local labor costs
Size of deck area
Climatic and acoustical levels desired in pool
Source of water and electrical supply
Experience of the architect or pool engineer

X. **Mistakes to Avoid**

A. There is seldom a pool built today that does not have at least one undesirable feature or outright error in its design. They all could have been avoided if proper planning had preceded construction. Some mistakes to guard against are listed below.

1. The major error made by many physical education and recreation personnel is that they often do not participate in the planning of a pool for their organization or group.
2. Some pool designs do not support or conform to program requirements.
3. The architect fails to follow the local board of health rules and regulations.
4. The professional personnel fail to prepare a complete "program design" statement for the architect's use.
5. The entrances to the pool from the locker room lead to the deep end of the pool rather than to the shallow end.
6. The pool basin is finished with material that is slippery, such as glazed tile or gloss enamel paint.
7. There is too much deep water, which increases the problem of supervision and reduces area needed for shallow water.
8. There is insufficient depth of water for diving.
9. Ladders are improperly placed so that they protrude into the pool basin.
10. There is an insufficient rate of recirculation of water to accommodate peak bathing loads.
11. There is inadequate storage space for instructional equipment and maintenance supplies.
12. Diving standards are not properly anchored into the deck.
13. There is an insufficient number of floor drains on deck and inadequate pitch on the deck in the direction of the drains.
14. There are insufficient distances between diving boards.
15. Acoustical material is not included on the ceiling and walls.
16. There is insufficient ceiling height above the diving boards.
17. There is insufficient illumination in the pool.
18. Clear glass windows are placed on the side of the pool resulting in a reflection of light on the water's surface.
19. Slippery tile is used on decks.
20. Non-corrosive material is not provided for all metal fittings.

21. Not enough lifeguard stands are provided.
22. Ladders or steps are placed in the end wall, thereby interfering with the turns made by swimmers during competition.
23. There is an inadequate overflow system at the ends of the pool.
24. There is failure to tie up the overflow system to the recirculating system, thereby causing the loss of thousands of gallons of water each day the pool is used.

XI. **Trends and Innovations in Pool Design and Operation**

A. Most of the trends and innovations listed below are experimental, although some have already proved their worth. They all deserve careful study.

1. "Rim flow" overflow system is an improvement over the original level deck pool design. It is a very efficient system for the circulation of water.
2. Inflatable roof structure. There are several interesting designs of this type (e.g., the pool at the Mammaronack High School in New York State).
3. The sky dome design is exemplified by the pool in the new town of Columbia, Maryland.
4. Pool tent cover is a German design which is to be incorporated in some of the facilities in the Munich Olympic Games of 1972.
5. Floating swimming pool complex has been designed, but not yet constructed, for New York City.
6. Prefabrication of pool tanks is another German innovation. Both the floor and walls are prefabricated and assembled at the site, thereby reducing the cost of labor.
7. Automation of pool recirculating and filter systems has been accomplished successfully, but the cost is high.
8. Regenerative cycle filter system was developed by the Per Company. It literally eliminates the need for backwashing the filters and employs a pressure diatomaceous earth (D.E.) filter.
9. Adjustable height diving platform. Michigan State University and Dartmouth College have examples.
10. Variable depth bottoms (moving floors) have been developed in Europe. They provide any depth needed for instruction of competition.
11. Fluorescent underwater lights. An installation of this design is going into the new 50 meter indoor pool at the University of Illinois (Chicago Circle Branch).

12. Automatic cleaning systems, which have been produced by several companies, automatically vacuum the bottom of pools
13. Wave making machine, produced in Germany, is capable of making waves in a pool.
14. Off-season use of outdoor pools. Many pools have been converted to fishing ponds, ice skating rinks, and areas for sailing and other boating activities during the off-season.
15. Sprayed urethane, as a pool basin finish, is particularly applicable in covering old painted and plaster surfaces.

XII. Hints on How to Get a Pool for a School

A. When a community is contemplating the construction of a new school, that is the time to consider the inclusion of a pool as part of the educational requirements. Some hints as to how to go about it from the standpoint of a physical education director or instructor are outlined below.

1. Study the need for a pool. Accumulate supporting data on the number of pools available in the community, the incidence of swimming ability among students, the relationship of the pool to the school's physical education program, etc.
2. Make the pool part of the total educational package. The pool should not be regarded as a separate option.
3. Be modest in the plan. Choose a good functional pool but not an elaborate one unless the community wants such a pool.
4. Involve the citizens of the community in the planning. In fact, use the "community pool" approach by designing the pool to meet community needs for aquatic instruction, rather than merely for the instruction of school children.
5. Schools and city governments can work together to build a pool. For example, the school can provide the land, the city can build the pool, and the school can operate the pool.
6. Show by illustration that the capital cost of the pool and its operation are low when calculated on the basis of its use. It will actually be the most used facility in the school.
7. Be willing to reduce certain indoor physical education areas to get the pool, which should be second in priority after the gymnasium.
8. One person must spearhead the drive for a pool. He must be respected in the community and be sufficiently articulate to convince civic groups and the public of the need for a pool.
9. If you cannot get an indoor pool, try for an outdoor pool. The cost is much less.

B. Approximately 98% of our school buildings lack pools. You might look at your building(s) to determine the possibility of "inserting" a pool into a vacant space in the building. Here are some practical locations.

1. Vacant classrooms. Many schools, particularly those of the inner city, have vacant classrooms. Two average size, adjacent classrooms divided by a non-bearing wall provide sufficient space for a shallow depth "training" pool 18 ft. x 36 ft. or 20 ft. x 40 ft. The pool can be a portable above-ground type or a permanent indoor pool.
2. Unused basement areas: School basements are not always used to their fullest extent. Find an area about 30 ft. x 60 ft. or longer if possible, and you're in business. Again, either a portable or permanent pool may be used.
3. Courtyards: Some school designs provide courtyards between building wings. This is a good spot to locate a pool. You might even be able to use one or two of the existing walls as part of the pool enclosure.
4. Other areas: Abandoned, all-purpose rooms, which become available when a gymnasium is added to the building, are also suitable pool sites.

SEMINAR

CONSTRUCTION AND DESIGN OF OUTDOOR COMMUNITY SWIMMING POOLS

Chairman: A. W. THIESSEN, Canadian Red Cross Society, Toronto
Speaker: JOSEPH ROGERS, JR., University of Massachusetts
Recorder: LIONEL McILWAIN, University of Toledo

I. Design Must Precede Construction.
   A. Communicate with the engineer rather than with the architect. Work with the pool owner.
   B. Design the pool for, and set priorities for:
      1. Recreation
      2. Instruction
      3. Competition.
   C. Design the pool to get the most pool for the money.
   D. Maintenance must be minimized.
   E. Filters vary in effectiveness.
      1. Diatomaceous earth filters of no value
      2. High rate sand not as good as low rate
         a) Alum of no use in high rate
         b) Better filtering occurring at a slow rate
         c) All sand–superior
   F. Several types of troughs may be used.
      1. Problems with "paddock" trough; however, some improvements made on this design
      2. Stainless steel–an improvement
      3. Deck level overflow modification
      4. Laying overflow pipes at footing level rather than hanging on sides
   G. Bottom inlets create impossible repair situations.
   H. Robot cleaners are superior to vacuuming.
      1. No water loss
      2. No wages
      3. Ninety-nine percent coverage
      4. Better suction

5. Some problems in Gunite pools with curved junction between bottom and wall

I. Certain methods are economical.
   1. Rectangular shape–cheapest
   2. L or T shapes often used
   3. Separate pools costly to run
   4. Waders' pool separate with frequent turnover (about every two hours) and high chlorine
   5. Observing state codes but estimating usage low to save on showers and toilets

J. Pools must be constantly sterilized.
   1. Eye irritation and ear infection minimized by iodine (a better fungicide than chlorine)
      Note: For information on use of iodine, write to:
      Ed Smyke, Emory University, Atlanta, Ga. 30322
   2. Eye irritation due to tri-chloramines, caused by not showering to remove perspiration and by urination
   3. Chlorine gas and potassium iodite effective
      a) Not oxidized by sun
      b) Pool algicide
      c) Must superchlorinate once weekly
      d) Some swimmers perhaps allergic to iodine and bromine

K. Poured concrete is best.

SEMINAR
RESEARCH

Chairman: WILLIAM McARDLE, Queens College, Flushing, New York
Speaker: JOHN MAGEL, Queens College, Flushing, New York
Recorder: RICHARD POHNDORF, University of Illinois

I. Research Related to Teaching and Coaching of Swimming

II. Strength
   A. Strength is of major importance in sprint events and of lesser importance for distance. A greater proportion of maximum arm strength is used in sprint events.
   B. Strength should be developed in the form of stroke movements.
      1. Tethered swimming is a means by which force can be measured since the swimmer is stationary.
      2. The force developed by the arms or legs alone can also be measured.
      3. The breaststroke kick creates the greatest force in absolute measures during tethered swimming. Greater resistance is created with free breaststroke swimming. There is no overlapping of leg or arm action as in the front crawl and back crawl. Some overlapping occurs in the butterfly stroke. Within a particular stroke, those who generate greatest force should be the fastest swimmers, especially in distance of 200 yards or less.

III. Metabolic Factors
   A. Heart rates while swimming are generally slower than running events of similar duration.
   B. Predominantly anerobic sources of energy are used in 50 yard to 100 yard sprints. There is both aerobic and anerobic exchange in 200 yard swims. Aerobic exchange in 500 yard and 1,000 yard swimmers is the predominant form of energy metabolism.
   C. Magnitude of heart rate is less in water than in running. Water of swimming pool temperature cools the body more effectively, thus making more blood available to the working muscles. Similar oxygen uptake values while running and swimming produce lower heart rates in swimming by as much as 20 beats per minute.

D. Heart rate is a good indicator of work intensity, especially in interval training. Heart rate should reach 170 to 180 beats per minute during repeat swimming to develop the oxygen transport system. Then it should recover to a level of approximately 140 beats per minute, repeat again to raise it to 170 to 180.

E. Specificity of activity and training
   1. Highly trained swimmers demonstrated similar oxygen uptake while swimming when they ran on a treadmill.
   2. Average trained swimmers have about 10% decrement in oxygen uptake while swimming as compared to running. Bicycle ergometer produces oxygen uptakes of about 10% less than treadmill running.
   3. Swimmers generally have heavier body weight than the average trackman. However, the buoyancy effects of water tend to offset the effects of heavier body weights.
   4. The best training is in the environment for which they are to compete. Therefore, measures of oxygen uptake should be taken in the water. Highly trained swimmers extract more oxygen in swimming than while running on land (such as treadmill and bicycle ergometer work) due to reduced ventilation in swimming.
   5. Biomechanics and stroke mechanics are interrelated. Effective use of muscular force is necessary since swimming efficiency ranges between 1% and 7%. Running efficiency approximates 25% to 30%.
   6. Duration and intensity of work are the factors involved in developing physiological improvement.

SEMINAR
POOL ADMINISTRATION

Chairman: A. W. THIESSEN, Canadian Red Cross Society, Toronto
Speaker: CHARLES STOTT, North Carolina State University
Recorder: ROBERT SWANSON, Newark College of Engineering

I. Premises

A. Growth and interest in aquatics have been staggering. In 1940, there were less than 11,000 swimming pools in the United States. Recent figures[5] indicate the following:

	1964	1969
Total number of swimming pools	566,800	891,900
Residential	396,800	644,700
Hotel, motel, apartment	81,350	123,500
Membership: clubs, country clubs	32,500	41,350
Municipal, community, county	31,100	37,650
College, university, YMCA, etc.	15,300	21,600
Miscellaneous	9,750	23,100

B. To meet the needs created by this burgeoning interest and growth, programs need to be devised.

II. Operating Procedure Manual

A. The manual should be in a loose-leaf form and be constantly upgraded and revised.

B. The manual should include, but not necessarily be limited to:

1. Introduction—purpose of agency and pool
2. Plan of operation
   a) Operation objectives
   b) User rules
   c) Parking plan
   d) Special groups
   e) House of operation
   f) Bathhouse traffic flow
   g) Checking of valuables
   h) Refreshment services
   i) Carrying capacity of pool (swimmer load)
   j) Patrol identification and control
   k) Miscellaneous services (e.g., towels, soap, hot water)

[5] 1969 National Swimming Pool Institute Market Report

3. Personnel, training, safety, and accident prevention
   a) Organization chart—administrative structure
   b) Job descriptions
   c) Work standards, pay scale, and hours
   d) In-service training—record of training
   e) Lifeguard staffing patterns
   f) Lifeguard swimmer load limit
   g) Staff meetings and staff evaluations
   h) Personnel regulations
4. Safety and accident prevention
   a) Plan of action [illegible] nt impending accidents
   b) Emergency training and drill
   c) Special precautions—testing or demonstrating diving gear, equipment, locking doors, "late-season slump," etc.
   d) Safety devices
   e) First aid room
   f) Accident procedures
   g) Pool safety checklist
   h) Special plans of action
   i) Danger areas rated (pool)
5. Business management
   a) Budget
   b) Attendance reports
   c) Receipts and banking procedure—change fund
   d) Time cards for pay purposes
   e) Inventory and office supplies
   f) Refreshment stand and vending machine records
   g) Parental permission records
   h) Operation records
   i) Safety records and reports
   j) Daily log
6. Program
   a) Recreational swimming
   b) Swimming instruction
   c) Lifesaving and water safety instruction
   d) Competitive swimming
   e) Synchronized swimming
   f) Water ballet
   g) Water carnivals and pageantry
7. Sanitation, disinfection, and filtration
   a) Health department requirements and procedures
   b) Water testing
   c) Filter operation
8. Appearance and orderliness
   a) Routine maintenance—painting and minor repairs
   b) Special maintenance—pool joints, surface repairs

c) Parking area—direction signs, curbs, parking lanes, restrictions, designated areas
d) Bicycle rack—bicycles restricted to rack
e) Baskets and hangers in proper place in racks
f) Checkroom and racks free of wet suits, towels, etc.
g) Dressing rooms free of suits, clothes, water hose, buckets, mops
h) First aid room and staff room neatly maintained
i) Deck chairs and benches policed periodically and at end of day
J) Lifeguard chairs (stands) uncluttered with towels, lotions, test kits, etc.

III. Future Considerations of the AAHPER Aquatics Council
A. Training and certification of pool managers beyond the Red Cross water safety instructor program or senior lifesaving course
1. At least three credit hours of instruction dealing with the importance of good pool administration and principles underlying same
2. In-depth training through institutes, workshops, continuing education short courses, and in-service training
B. Formula for pool swimmer loads
C. More effective lifeguard staffing patterns
D. Lifeguard—swimmer load ratio limits
E. Ways and means of exchanging, marketing, and increasing distribution of publications on pool management and aquatic program

IV. Cooperation with the Following Organizations to Achieve the Goals of the AAHPER Aquatics Council:
A. American National Red Cross and Canadian Red Cross
B. Council for National Cooperation in Aquatics
C. National Recreation and Park Association
D. National Swimming Pool Institute
E. American Camping Association
F. Local and state health departments

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SEMINAR

TEACHING AND TESTING TECHNIQUES FOR STARTS AND TURNS

Chairman: JACK SCHILTZ, Virginia Commonwealth University
Speaker: LEWIS MacNEILL, Pennsylvania State University
Recorder: CHARLES ARNOLD, University of New Hampshire

I. Starts
   A. For crawl stroke, breaststroke, and butterfly stroke
      1. Arm positions in preparation for start
         a) Arms positioned forward or in front of vertical plane
         b) Arms hanging pendent or at 90° angle
         c) Arms carried or held near hip region at 130° to 145° angle
   B. Backstroke start
      1. Basic starting positions
         a) Standard tuck position or crouch
         b) Stand up position or semi-standing
      2. Arm swing techniques
         a) Low, close to water, sidewards
         b) Oblique at 45° angle
         c) High arm swing with shoulder flexion—may result in deep entry

II. Turns
   A. Crawlstroke turns
      1. A reference used on bottom of pool to start turn
      2. Tumble turns
         a) One arm
         b) Two hand pull through with dolphin kick
   B. Backstroke turns
      1. Regular
      2. Cross-over
   C. Turns for breaststroke and butterfly stroke
      1. One arm thrust
      2. Elbow
      3. Both arms

4. Individual medley (from backstroke to breaststroke)
   a) Open turns
   b) Flip turn from backstroke into breaststroke, or back somersault with front push-off

   Note. A technique to measure speed of breaststroke turn. Using stopwatch at a point 25 ft. from wall, start watch as swimmer passes. Swimmer swims into wall, turns, pushes off, and the watch is stopped as the swimmer passes the 25 ft. mark.

III. **Relay Starts or Pick-ups**
   A. Setting up point of reference
   B. Accurate relay pick-up—major responsibility of swimmer coming into wall. Emphasis on swimmer coming into wall at top speed

IV. **Measurement**
   A. Reaction time
      1. From gun to initial movement
      2. From initial movement to last contact
   B. Grab start versus regular swing start
   C. Using center of gravity as a measurement point of reference to follow pathways
   D. Backswing difference in arm thrust

SEMINAR

TEACHING METHODS AND PROGRESSIONS I

Chairman: ROLAND BALCH, University of Colorado
Speaker: ROLAND BALCH
Recorder: RITA BENSON, Smith College, Northampton, Massachusetts

I. Physical Education Majors Should Know:
   A. Standardized programs in methods and progressions
   B. How to go from known to unknown in swimming skills
   C. How to analyze learner's difficulty
   D. How to modify method so that success is achieved.

II. Modification of Method—A Key Factor
   A. When standardized methods do not function
   B. If progressions are improperly graduated
   C. When standardized methods are unsuccessful for non-swimmers

III. Suggested Modifications for Adult Non-swimmers
   A Breath control through humming
   B. Underwater play techniques
   C. Becoming physically and mentally at home underwater
   D. Learning propulsion, using scissors kick while underwater
   E. Adding top arm to scissors kick while underwater
   F. Trying fully coordinated sidestroke underwater, then trying it on the surface
   G. Teaching back float, back glide
   H. Teaching elementary backstroke
   I. Sidestroke at surface with breathing
   J. Changing from sidestroke to elementary backstroke
   K. Crawl stroke taught after sidestroke and elementary backstroke

IV. General Comments
   A. Teaching sidestroke and elementary backstroke before crawl to eliminate thrash, splash, and struggle
   B. The fact that rather than panicking in deep water, the non-swimmer with underwater experience will go under, swim, or bob to safety
   C. The importance of the non-swimmer to be "at home" underwater before stroke teaching can be effective

SEMINAR

TEACHING METHODS AND PROGRESSIONS II

Chairman: RALPH BIBLER, University of Colorado
Recorder: MARGARET BUCK, Mankato State College, Mankato, Minnesota

I. **Teaching the Preschooler**
   A. Justification for teaching
      1. Four- and five-year-olds want swimming instruction.
      2. They have motor readiness.
      3. In some countries and areas, there is a real danger if the child has not learned to swim by age three.
      4. If taught early, the child will become accustomed to water before he is afraid of it.
      5. It is a great carryover value throughout childhood and provides a head start for aquatic activities.
   B. Instructional ideas, teaching aids, and devices for preschooler swimming lessons
      1. Children need frequency in the water.
      2. Water temperature should be about 90°.
      3. A belt devised of styrofoam may be used as an aid.
      4. William Brooks of Harvard has created a foldup aquatic tank to be used by parents for preschoolers. Complete directions and script for lessons accompany the tank. This is, or soon will be, on the market (Price: $9–$15).
      5. The mother-child teaching situation works very well. The teacher gives instructions to the mother, who in turn, interprets them to her youngster and helps him practice.
      6. Some agencies have pool water levels lowered for teaching preschoolers.

II. **Supplementary Materials and Devices Used as Aids in Swimming Instruction at All Levels**
   A. Sound devices
      1. Percussion devices and records may be used to develop a better kick.

2. Styrofoam speakers can be placed in the water. They are effective up to 15 ft.
3. The SCUBA Yak-Yak (a walkie-talkie), which has been advertised in "Skin Diver Magazine," is effective up to 80 ft. to 100 ft. (Price about $7.00).

B. Other aids and devices to the swimming instructional program
1. Inflatable arm bands are effective.
2. Walking with fins in pool or beach bottom is useful for teaching preschoolers to kick.
3. Using fins develops a good kick.
4. "Giant" rubber bands made from inner tubes can be used.
   a) Use them around ankles and knees for dolphin kick.
   b) Try the figure 8 arrangement around the ankles for developing trunk muscles while doing the flutter kick.
5. Nylon rope and a styrofoam device can be used on legs to raise feet.
6. Use swim fins on feet for better effect in pull practice.
7. For a good flotation device, place a Chlorox bottle (quart size, with top) in nylon stocking and tie high on preschooler's back.
8. Resistance apron may be used for overload. There are positioning problems, but it works effectively in some instances.
9. Tether the swimmers so they swim in place; they can be weighted if desirable.
10. Walking exercises shoes designed to stretch the Achilles tendon are effective in developing a good breaststroke kick.
11. Portable swimming pools have proved useful in many situations. Although certain states bar them, the pools are being perfected, which may result in greater acceptance.
12. In unclassified large groups, charts, task sheets, and cards for each skill level have proved useful. The Johnson Skill Charts[6] for competitive swimming skills are good.

III. Special Problems of Various Group Members

A. Teaching men swimmers with low specific gravity to tread water—a potential problem
1. One solution is to teach scissoring very well in shallow water. It helps the swimmers to start from the breaststroke position and work toward the vertical position.

B. Some instructors successful in teaching breaststroke kick if taught before the scissors kick. Some instructors still preferring the frog kick for certain individuals.

IV. Instructors Using Correct Skill Progressions to Avoid Relearning

[6] Ralph L. Johnson, Swimming Coach, Youngstown State University, Youngstown, Ohio

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JURISPRUDENCE: AS IT AFFECTS AQUATIC PROGRAMS

I. Introduction
   A. The law is divided into two areas, criminal and civil.
   B. Aquatic cases generally involve civil law and equity cases.
      1. In civil law, one party sues another party for money.
      2. In equity cases, one party seeks the court to take action.
   C. The theory of civil law is based on contract or tort.
   D. A legal entity suit predicated on negligence is a "tort."
      1. Suits against universities or private institutions are few; many suits are against clubs, private pools, and community pools.
      2. Schools of state or arm of state have governmental immunity; charitable or corporate bodies with insurance sometimes do not have immunity.
   E. Personal insurance can be purchased to cover a private or personal swimming facility.
      1. For a corporation, the plaintiff must sue a corporate entity rather than an individual. An attorney should be consulted as to the local jurisdiction.

II. Duty and Liability
   A. General principles concerning the plaintiff-defendant situation are as follows:

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[7] John Bell received both his B.A. (physical education major) and LL.B. degrees from the University of Maryland, where he was captain of the swimming team. In addition, he has served as a pool manager, swimming instructor, and lifeguard. In private practice, Mr. Bell's specialty is liability law.

1. Owner or operator—occupant of land must keep premises in reasonably safe condition.
2. Operators of public pools or diving facilities must ensure reasonable care for patrons' safety and guard against injury. The law imposes duty upon the operator. No two cases are alike; they vary from jurisdiction to jurisdiction. California leans toward plaintiff whereas Delaware is conservative and leans toward defendant.
3. A proprietor is not the insurer of safety to his patrons.

III. **Presumption of Negligence**

A. Just because someone is injured or drowns, negligence of the proprietor is not necessarily assumed. There has to be proof of negligence.

B. The following items relate to this area:

1. A proprietor must warn patron of dangers which are observable, as well as of dangers that may be observable but not recognizable to patron (e.g., a light that is out or a bulb that falls and hits someone). Failure to provide a warning can result in a suit and a large amount of money could be involved.
2. If a proprietor provides appliances or equipment, he has an obligation to see that they are suitable for their intended purposes. This includes pool maintenance and care, i.e., sharp edges, nail in the kickboard. A breach of duty may result in possible responsibility.
3. No jurisdiction allows assumption in cases where diseases are contracted in the pool.
4. Glass or instruments resulting in cuts or injuries are not necessarily the liability of the proprietor.

VI. **Contributory Negligence**

A. Contributory negligence is defined as subjecting one's life to a known danger, becoming apprised of the danger through the exercise of ordinary care, voluntarily placing one's self in peril, or failing to use ordinary care to avoid danger.

B. Once a proprietor appropriates public water (e.g., ocean, lake, river) for his own use, he must exercise care to prevent injury to patrons, who, without fault, might use the waters in the customary way.

V. **Limitations of Liability**

A. Swimming at a beach or river can result in negligence if a proprietor does not take proper care.

B. At public lands or where water is for public use at a profit, the operator is responsible for advertising the area as a safe place,

i.e., signs must be posted to protect liability, even though proprietors are not exonerated if they do provide signs. To absolve liability, the proprietor must prove that signs were brought to the attention of the patrons. If state law requires this, then having lifeguards and posting signs ("Swim at Own Risk") is invalid and does not absolve the proprietor from liability.

C. The court position basically leans heavily on public or private pools where fees are involved.
   1. In university or school situations where a special fee is charged, the courts may deem that the proprietor should exercise greater precautions.
   2. Courts are more lenient toward schools than toward commercial entities.

VI. Specific Duties

A. A paying guest at a hotel, resort, club, or similar establishment is a business invitee. The proprietor must exercise the same degree of care that a private pool operator would. In either case, the owner/operator is only required to exercise ordinary care to prevent the guests or patrons from being drowned or injured.

B. Specific duties
   1. A proprietor must provide warning signs indicating various water depths.
   2. A proprietor must provide a reasonably sufficient number of attendants or lifeguards for the general needs of the patrons.

CLOSING REMARKS

I wish to extend our gratitude to the chairmen and recorders of all the sessions. I also wish to thank the planning and editorial committees, the introducers, the AAHPER personnel, and offer a very special thanks to the speakers.

I thought you might be interested in the composition of the participants at our conference. There were 188 conferees from higher education, 63 from elementary and secondary schools, 20 from various agencies, and 12 from other categories such as recreation, sports clubs, and other associations, for a total of 283 participants. We had 41 states represented and 12 participants from Canada. The three states with the largest representation were New York with 34 registrants, Illinois with 30, and Michigan with 21.

We set for ourselves the task of preparing standards for the professional preparation of aquatic personnel. What did we accomplish? Less perhaps than some wished we might but more, much more than some thought we could. Specifically we have agreed that (1) our professional endeavors belong for the time being in the province of the health, physical education, and recreation departments of our colleges and universities; (2) physical education majors should have some contact and experience with the area of aquatics; (3) there are different levels of preparation needed for a variety of professional aquatic positions; and (4) we have made a tremendous start in defining the competencies needed by aquatic personnel if they are to be truly qualified to carry out the ever increasing responsibilities placed upon their shoulders.

Where do we go from here? What remains to be done? We need district and state organization and reaction; refinement of the present undertaking; continued involvement of the conferees and of those who could not attend the conference; image improvement; more research and scholarly materials; and finally, increased communication.

I have saved the best until the last. One of the most important highlight highlights of this conference has been you, the conferee, the participant. You have shown that you care very deeply about the problems we face and that you are willing to work, literally like slaves, to thrash out differing opinions. Never have I seen such a truly dedicated group of knowledgeable people. Seldom have I seen so many individuals stick so closely to a driving time schedule and yet keep coming back for more. I speak for the executive committee in thanking you for your participation and for making this first effort a rewarding experience for so many.

JEAN ARRASMITH
Conference Director

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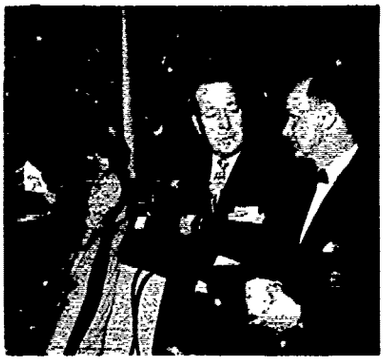

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1. A participant emphasizes a point
2. Conferees exchanging ideas
3. Fred Murphy, Marjorie Blaufarb, and Joanna Midtlyng at the registration desk
4. Socializing during a coffee hour
5. Harold Friermood discusses aquatic topics with (l to r) Muriel Sloan, Gladys Brown, and Betty Spears

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